CHAPTER 31

LIST OF EFFECTIVE TEMPORARY REVISIONS

FOLLOWING IS A COMPLETE LISTING OF ALL ACTIVE TEMPORARY REVISIONS (TR'S). TR'S NOT LISTED SHOULD BE REMOVED. THE ATA NUMBER, CONFIG CODE AND PAGE NUMBER IDENTIFIES THE PAGE PRECEDING THE TR.

TR NUMBER	ATA NUMBER	CONFIG CODE	PAGE NUMBER	TR DATE

NONE

CHAPTER 31

INSTRUMENTS

LIST OF EFFECTIVE PAGES

CHAPTER/ SECTION	PAGE	DATE	CONFIG CODE
List of Effective Pages	1	Dec 15/95	
	2	Dec 15/95	
	3	Dec 15/95	
	4	Dec 15/95	
	5	Dec 15/95	
	6	Dec 15/95	
	7/8	Dec 15/95	
Table of Contents	1	Nov 15/86	
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	3	Jun 15/92	
	4	Jun 15/92	
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31-conts	1	Dec 15/92	
31-conts	2	Dec 15/92	
31-conts	3	May 15/90	
31-conts	4	May 15/90	
31-conts	5	May 15/90	
31-conts	6	May 15/90	
31-conts	7	May 15/90	
31-conts	8	Mar 15/91	
31-DIAGM	1	May 15/82	
31-DIAGM	2	Feb 15/82	
31-DIAGM	3	Feb 15/82	
31-DIAGM	4	Nov 15/82	
31-DIAGM	5	Feb 15/82	
31-DIAGM	6	Nov 15/82	
31-DIAGM	7/8	May 15/82	
31-INDEX	1	Aug 15/82	
31-INDEX	2	Nov 15/84	
31-INDEX	3	May 15/89	
31-INDEX	4	Aug 15/82	
31-00-00	1/2	Nov 15/73	
31-10-00	1/2	Aug 15/81	
31-10-00	3/4	Aug 15/81	
31-10-00	5/6	Aug 15/81	
31-11-00	1	Jan 15/72	
31-11-00	2	Dec 1/71	
31-11-00	3	Mar 15/91	
31-11-00	4	Aug 15/81	
31-11-00	5	Mar 15/91	
31-11-00	6	Apr 15/73	
31-11-00	7	May 15/85	
31-11-00	8	Aug 15/81	
31-11-00	9/10	Mar 15/83	
R 31-11-00	11/12	Dec 15/95	
R 31-11-00	13/14	Dec 15/95	
31-11-01	401	Jun 15/92	
31-11-01	402	Mar 15/91	
31-11-01	403	Dec 15/91	
31-11-01	404	Mar 15/91	
31-11-01	405	Mar 15/91	
31-11-01	406	Mar 15/91	
31-11-01	407	Jun 15/92	
31-11-01	408	May 15/75	
31-11-02	401	Aug 15/81	
31-11-02	402	Aug 15/81	
31-11-02	403	May 15/88	
31-11-02	404	May 15/88	
31-11-02	405	May 15/88	
31-11-02	406	May 15/88	
31-11-02	407	May 15/88	
31-11-02	408	May 15/88	
31-11-03	401	Mar 15/91	
31-11-03	402	Jun 15/92	
31-11-03	403	Mar 15/91	
31-11-03	404	Jun 15/92	
31-11-03	405	Mar 15/91	
31-11-03	406	Mar 15/91	
31-11-03	407	Mar 15/91	
31-11-03	408	Mar 15/91	
31-11-03	409/410	Mar 15/91	
31-11-04	401	Aug 15/81	
31-11-04	402	Aug 15/81	
31-11-04	403/404	Aug 15/76	
31-12-00	1	Aug 1/72	
31-12-00	2	Aug 15/81	
31-12-00	3	Jul 15/83	
31-12-00	4	Aug 15/81	
31-13-00	1	Aug 15/78	
31-13-00	2	Aug 15/78	

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31-13-00	3/4	Aug 15/81	
31-14-00	1	Mar 15/73	
31-14-00	2	Dec 1/71	
31-14-00	3	Aug 15/81	
31-14-00	4	Aug 15/81	
31-15-00	1	Dec 1/71	
31-15-00	2	Mar 15/80	
31-20-00	1/2	Mar 15/80	
31-21-00	1	Sep 15/80	
31-21-00	2	Aug 15/81	
31-21-00	3	Nov 15/81	
31-21-00	4	May 15/82	
31-21-00	5	May 15/82	
31-21-00	6	May 15/82	
31-21-00	7	May 15/82	
31-21-00	8	Nov 15/81	
31-21-00	101	May 15/82	
31-21-00	102	Nov 15/81	
31-21-00	103	Mar 15/81	
31-21-00	104	Nov 15/81	
31-21-00	105/106	Nov 15/81	
31-21-00	501	Aug 15/81	
31-21-00	502	Aug 15/81	
31-21-00	503/504	Aug 15/81	
31-21-01	401	Feb 15/82	
31-21-01	402	Dec 1/71	
31-21-01	403	Feb 15/82	
31-21-01	404	Feb 15/82	
31-21-02	401	Nov 15/82	
31-21-02	402	Mar 15/80	
31-21-04	401	Feb 15/75	
31-21-04	402	Feb 15/75	
31-22-00	1	Aug 15/81	
31-22-00	2	Aug 15/75	
31-22-00	3	Dec 15/92	
31-22-00	4	May 15/82	
31-22-00	5	May 15/82	
31-22-00	6	May 15/82	
31-22-00	7	May 15/82	
31-22-00	8	May 15/82	
31-22-00	9	May 15/82	
31-22-00	10	Aug 15/82	
31-22-00	11	May 15/82	
31-22-00	12	May 15/82	
31-22-00	13/14	May 15/82	
31-22-00	15/16	Aug 15/82	
31-22-00	17	May 15/82	
31-22-00	18	May 15/82	
31-22-00	19	Dec 15/92	
31-22-00	20	May 15/82	
31-22-00	21/22	Dec 15/92	
31-22-00	101	Dec 15/92	
31-22-00	102	Nov 15/87	
31-22-00	103	Nov 15/87	
31-22-00	104	Dec 15/92	
31-22-00	105	May 15/90	
31-22-00	106	Mar 15/81	
31-22-00	107	Mar 15/81	
31-22-00	108	Mar 15/81	
31-22-00	109	Mar 15/81	
31-22-00	110	Aug 15/81	
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31-22-00	112	Aug 15/81	
31-22-00	113	Aug 15/81	
31-22-00	114	Aug 15/81	
31-22-00	115	Aug 15/81	
31-22-00	116	Feb 15/82	
31-22-00	117	Dec 15/92	
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31-22-00	128	May 15/90	
31-22-00	129	May 15/90	
31-22-00	130	May 15/90	
31-22-00	131/132	Nov 15/82	
31-22-00	133/134	Nov 15/82	
31-22-00	135/136	Nov 15/82	
31-22-00	137/138	Nov 15/82	
31-22-00	139/140	Nov 15/82	
31-22-00	141/142	Nov 15/82	
31-22-00	143/144	Jul 15/84	
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31-22-00	147/148	Nov 15/82	
31-22-00	149/150	Nov 15/82	
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31-22-00	153/154	Nov 15/82	
31-22-00	155/156	Nov 15/87	
31-22-00	157/158	Dec 15/92	
31-22-00	159/160	Dec 15/92	

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31-22-00	161/162	Nov 15/82	
31-22-00	501	Feb 15/82	
31-22-00	502	Feb 15/82	
31-22-00	503	Nov 15/82	
31-22-00	504	Nov 15/81	
31-22-00	505	Nov 15/81	
31-22-00	506	May 15/89	
31-22-00	507	Nov 15/81	
31-22-00	508	Nov 15/81	
31-22-00	509	Nov 15/88	
31-22-00	510	Nov 15/89	
31-22-00	511	Nov 15/89	
31-22-00	512	Nov 15/89	
31-22-00	513	Nov 15/89	
31-22-00	514	Nov 15/89	
31-22-00	515	Nov 15/89	
31-22-00	516	Nov 15/89	
31-22-01	401	Aug 15/81	
31-22-01	402	Aug 15/81	
31-22-01	403	May 15/75	
31-22-01	404	May 15/75	
31-22-02	401	Aug 15/81	
31-22-02	402	Mar 15/84	
31-22-02	403	Mar 15/84	
31-22-02	404	Mar 15/84	
31-22-02	405/406	Mar 15/84	
31-22-03	401	Nov 15/81	
31-22-03	402	Nov 15/81	
31-22-04	401	May 15/75	
31-22-04	402	Mar 15/80	
31-22-04	403/404	May 15/75	
31-22-05	401	Aug 15/81	1
31-22-05	402	May 15/82	1
31-22-05	403	Jul 15/83	1
31-22-05	404	Jul 15/83	1
31-22-05	405	Jul 15/83	1
31-22-05	406	Aug 15/81	1
31-22-05	401	Aug 15/81	2
31-22-05	402	May 15/82	2
31-22-05	403	May 15/82	2
31-22-05	404	May 15/82	2
31-22-05	405	May 15/82	2
31-22-05	406	Aug 15/81	2
31-22-07	401	Aug 15/81	
31-22-07	402	Aug 15/81	
31-22-07	403	May 15/75	
31-22-07	404	May 15/75	
31-22-08	401	Aug 15/81	
31-22-08	402	Aug 15/81	
31-22-08	403	Mar 15/83	
31-22-08	404	May 15/75	
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31-31-00	111	Mar 15/83	
31-31-00	112	May 15/82	
31-31-00	113/114	May 15/82	
31-31-01	401	May 15/82	
31-31-01	402	Dec 15/80	
31-31-01	403/404	May 15/82	
31-31-01	501	Nov 15/84	
31-31-01	502	Nov 15/84	
31-31-01	503	May 15/86	
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31-31-01	506	May 15/86	
31-31-01	507	Nov 15/84	
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31-31-01	511	Nov 15/84	
31-31-01	512	Nov 15/84	
31-31-01	513	Nov 15/84	
31-31-01	514	Jun 15/93	
31-31-01	515	Jun 15/93	
31-31-01	516	Nov 15/84	
31-31-01	517	Nov 15/84	
31-31-01	518	Nov 15/88	
31-31-01	519	Nov 15/84	

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31-31-01	526	Nov 15/84	
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31-31-01	531	Nov 15/84	
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31-31-01	540	Nov 15/84	
31-31-01	541	Nov 15/84	
31-31-01	542	Nov 15/84	
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31-31-01	569	Jun 15/93	
31-31-01	570	Nov 15/84	
31-31-01	571	Jun 15/93	
31-31-01	572	Nov 15/84	
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31-31-01	574	Nov 15/84	
31-31-01	575	Nov 15/84	
31-31-01	576	Nov 15/84	
31-31-01	577/578	Nov 15/84	
31-31-04	401	Nov 15/83	
31-31-04	402	Nov 15/83	
31-31-04	403/404	Nov 15/81	
31-31-07	401	Nov 15/88	
31-31-07	402	Nov 15/88	
31-31-14	401	May 15/82	
31-31-14	402	May 15/82	
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31-32-00	12	Nov 15/83	
31-32-00	13	Apr 1/72	
31-32-00	14	Apr 1/72	
31-32-00	15	Apr 1/72	
31-32-00	16	Apr 1/72	
31-32-00	17	Apr 1/72	
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31-32-00	22	Apr 1/72	
31-32-00	23	Apr 1/72	
31-32-00	24	Apr 1/72	
31-32-00	25	Apr 1/72	
31-32-00	26	Apr 1/72	
31-32-00	27	Apr 1/72	
31-32-00	28	Mar 15/83	
31-32-00	29	Apr 1/72	
31-32-00	30	Apr 1/72	
31-32-00	31	Apr 1/72	
31-32-00	32	Apr 1/72	

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31-32-00	34	Apr 1/72	
31-32-00	35	Apr 1/72	
31-32-00	36	Apr 1/72	
31-32-00	37	Apr 1/72	
31-32-00	38	Apr 1/72	
31-32-00	39	Apr 1/72	
31-32-00	40	Apr 1/72	
31-32-00	41	Apr 1/72	
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31-32-00	47	May 15/73	
31-32-00	48	May 15/82	
31-32-00	49	Feb 15/73	
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31-32-00	63/64	Feb 15/73	
31-32-00	65	Mar 15/83	
31-32-00	66	Mar 15/80	
31-32-00	67	Apr 1/72	
31-32-00	68	Mar 15/80	
31-32-00	69/70	Feb 15/73	
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31-32-00	115/116	May 15/82	
31-32-00	117/118	May 15/82	
31-32-00	119/120	May 15/82	
31-32-00	121/122	May 15/82	
31-32-00	123/124	May 15/82	
31-32-00	125/126	May 15/82	
31-32-00	127/128	May 15/82	
31-32-00	129/130	May 15/82	
31-32-00	131/132	May 15/82	
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31-32-00	135/136	May 15/82	
31-32-00	137/138	May 15/82	
31-32-00	139/140	May 15/82	
31-32-00	141	May 15/82	
31-32-00	142	May 15/82	
31-32-00	143/144	May 15/82	
31-32-00	145/146	May 15/82	
31-32-00	501/502	Nov 15/84	
31-32-01	401	Feb 15/78	
31-32-01	402	Feb 15/78	
31-32-01	501/502	Jan 15/72	
31-32-02	401/402	May 15/82	
31-32-03	401	Feb 15/78	
31-32-03	402	Feb 15/78	
31-32-04	401	Feb 15/78	
31-32-04	402	Dec 15/80	
31-32-05	401	Feb 15/78	
31-32-05	402	Feb 15/78	
31-32-08	401/402	Feb 15/74	
31-32-10	101	Mar 15/81	
31-32-10	102	Mar 15/81	
31-32-10	103	Mar 15/81	
31-32-10	104	Mar 15/81	
31-32-10	105/106	Mar 15/81	
31-32-10	107/108	Mar 15/81	
31-32-10	109/110	Mar 15/81	
31-32-10	111/112	Mar 15/81	
31-32-10	113/114	Mar 15/81	
31-32-10	115/116	Mar 15/81	
31-32-10	117/118	Mar 15/81	
31-32-10	119/120	Mar 15/81	
31-32-10	121/122	Mar 15/81	
31-32-10	123/124	Mar 15/81	
31-32-10	125/126	Mar 15/81	
31-32-10	127/128	Mar 15/81	
31-32-10	129/130	Mar 15/81	

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31-32-10	133/134	Mar 15/81	
31-32-10	135/136	Mar 15/81	
31-32-10	137/138	Mar 15/81	
31-32-10	139/140	Mar 15/81	
31-32-10	141/142	Mar 15/81	
31-32-10	143/144	Mar 15/81	
31-32-10	145/146	Mar 15/81	
31-32-10	147/148	Mar 15/81	
31-32-10	149/150	Mar 15/81	
31-32-10	151/152	Mar 15/81	
31-32-10	153/154	Mar 15/81	
31-32-10	155/156	Mar 15/81	
31-32-10	157/158	Mar 15/81	
31-32-10	159/160	Mar 15/81	
31-32-10	161/162	Mar 15/81	
31-32-10	163/164	Mar 15/81	
31-32-10	165/166	Mar 15/81	
31-32-10	167/168	Mar 15/81	
31-32-10	169/170	Mar 15/81	
31-32-10	171/172	Mar 15/81	
31-32-10	173/174	Mar 15/81	
31-32-10	175/176	Mar 15/81	
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31-32-10	179/180	Mar 15/81	
31-32-10	181/182	Mar 15/81	
31-32-10	183/184	Mar 15/81	
31-32-10	185/186	Mar 15/81	
31-32-10	187/188	Mar 15/81	
31-32-10	189/190	Mar 15/81	
31-32-10	191/192	Mar 15/81	
31-32-10	193/194	Mar 15/81	
31-32-10	195/196	Mar 15/81	
31-32-10	197/198	Mar 15/81	
31-32-11	101	Feb 15/82	
31-32-11	102	Mar 15/81	
31-32-11	103/104	Mar 15/81	
31-32-11	105/106	Mar 15/81	
31-32-11	107/108	Mar 15/81	
31-32-11	109/110	Mar 15/81	
31-32-11	111/112	Mar 15/81	
31-32-11	113/114	Mar 15/81	
31-32-11	115/116	Mar 15/81	
31-32-11	117/118	Mar 15/81	
31-32-11	119/120	Mar 15/81	
31-32-11	121/122	Mar 15/81	
31-32-11	123/124	Mar 15/81	
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31-32-11	129/130	Mar 15/81	
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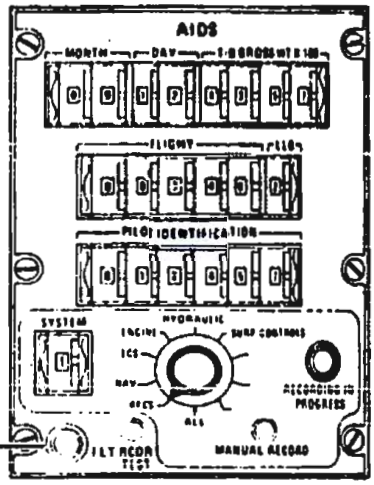
AURAL WARNING



FLIGHT RECORDER

(FE/SO PANEL)

TITLE	CHAP/SEC
AURAL WARNING	3122
FLIGHT RECORDER	3131

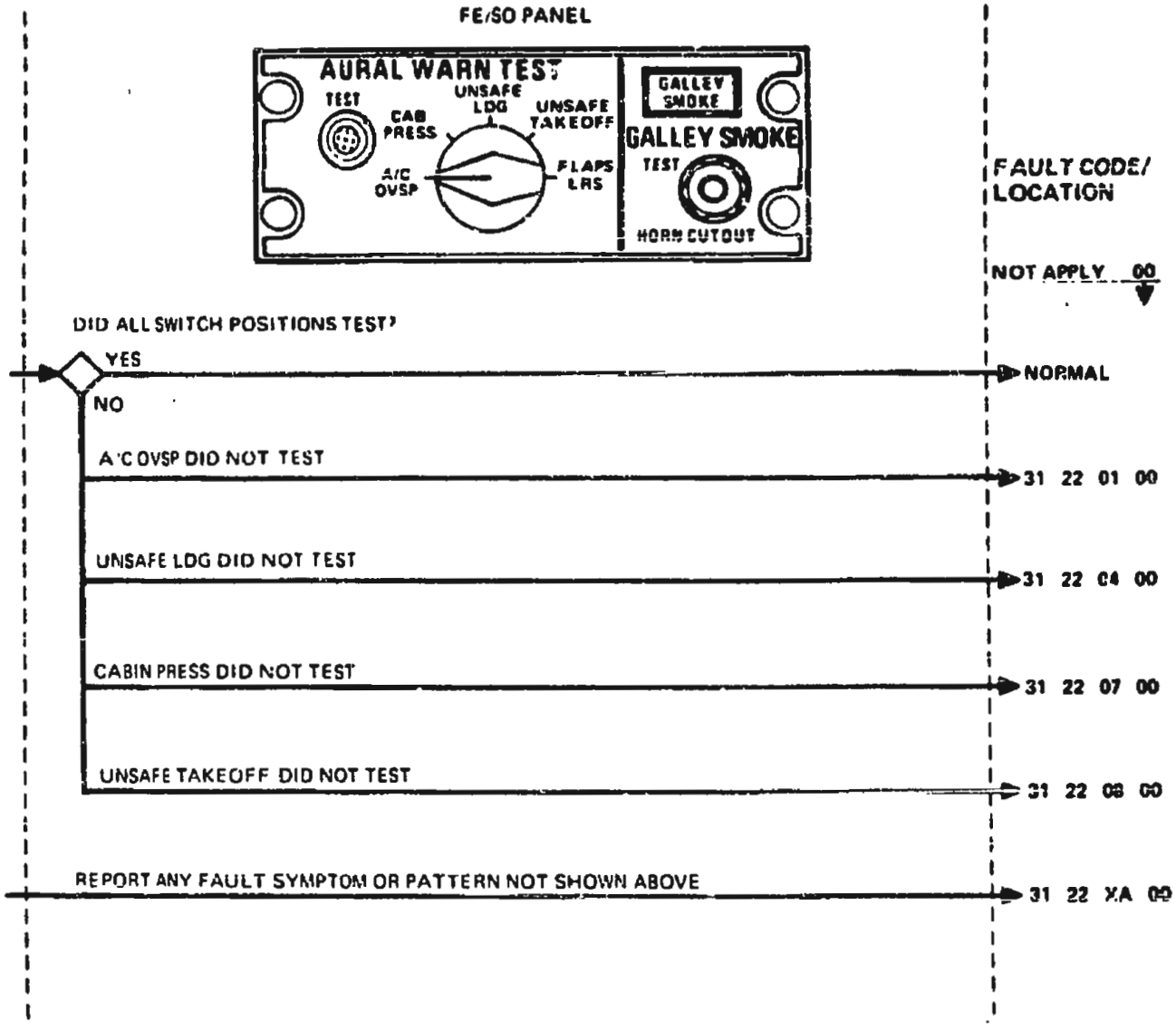
M1-0002-31-2704

CR

INSTRUMENTS CONTENTS

EFFECTIVITY: ALL

001B



APPLICABLE CIRCUIT BREAKERS

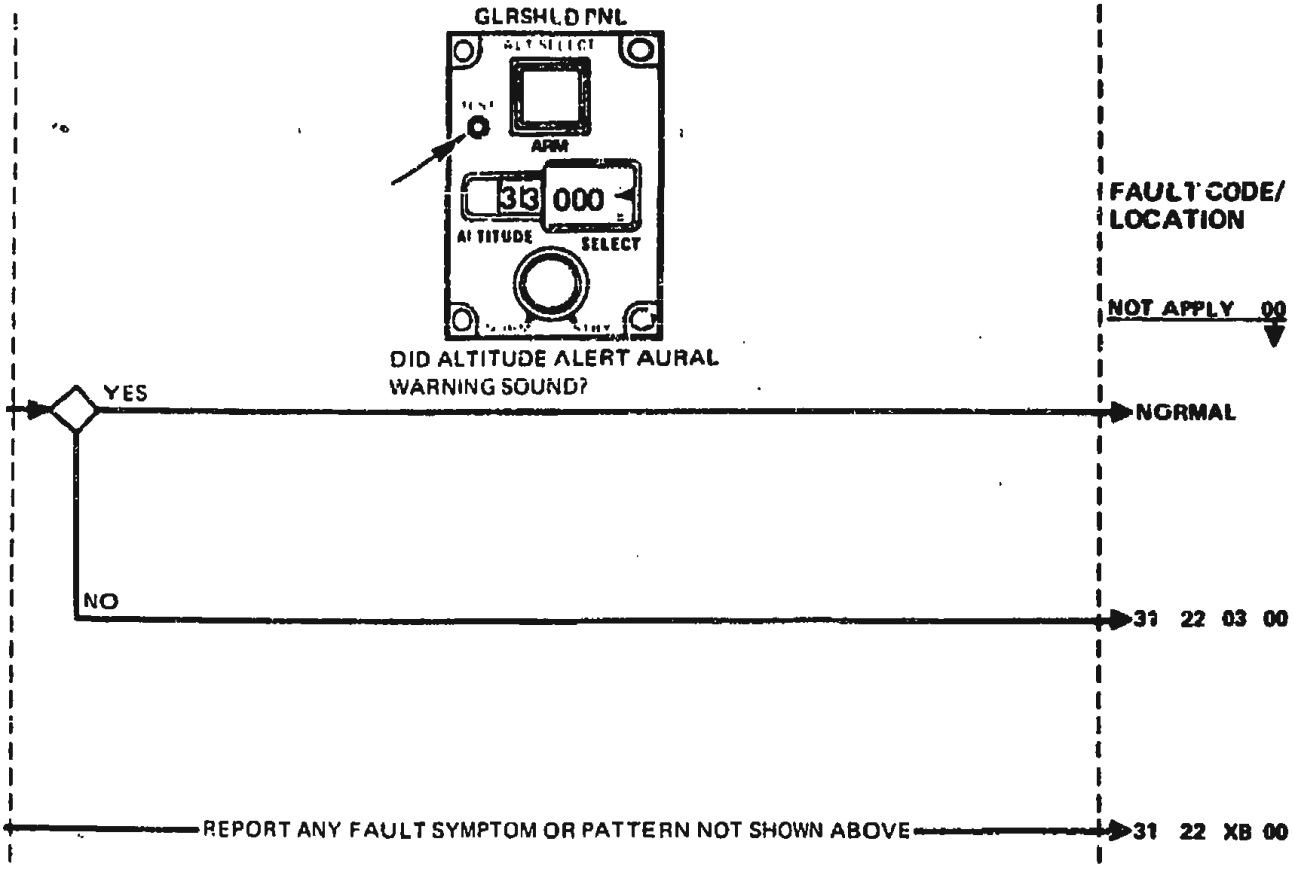
1A6	NO 1 SYSTEM PITCH & ROLL	1K18	STBY INVERTER VOLTAGE	1L9	A C CONFIG
1A24	NO 2 SYSTEM PITCH & ROLL	1K19	CMPS CPLR 1	1L10	PROX SW PWR NO. 1
1B4	FCES CMPTR DC	1K27	ALT ALERT 1	1L11	PROX SW PWR NO. 2
1B5	FCES CMPTR AC & AOA	1L3	RAT AUTO DEPLOY	1L12	WARN HORN
1G8	AIR DATA CMPTR	1L6	CABIN PRESS & TEST	2H7	T O AURAL WARN
1G27	AIR DATA CMPTR	1L7	OVSP	3H3	PROX SW NO. 2
1J21	ALT ALERT 2	1L8	MULT SND	3H4	PROX SW NO. 3

ED1-0000-31-028

R Aural Warning - Test - Fault Codes
Figure 1

R EFFECTIVITY: ALL

31-FAULT CODE DIAGRAM



APPLICABLE CIRCUIT BREAKERS

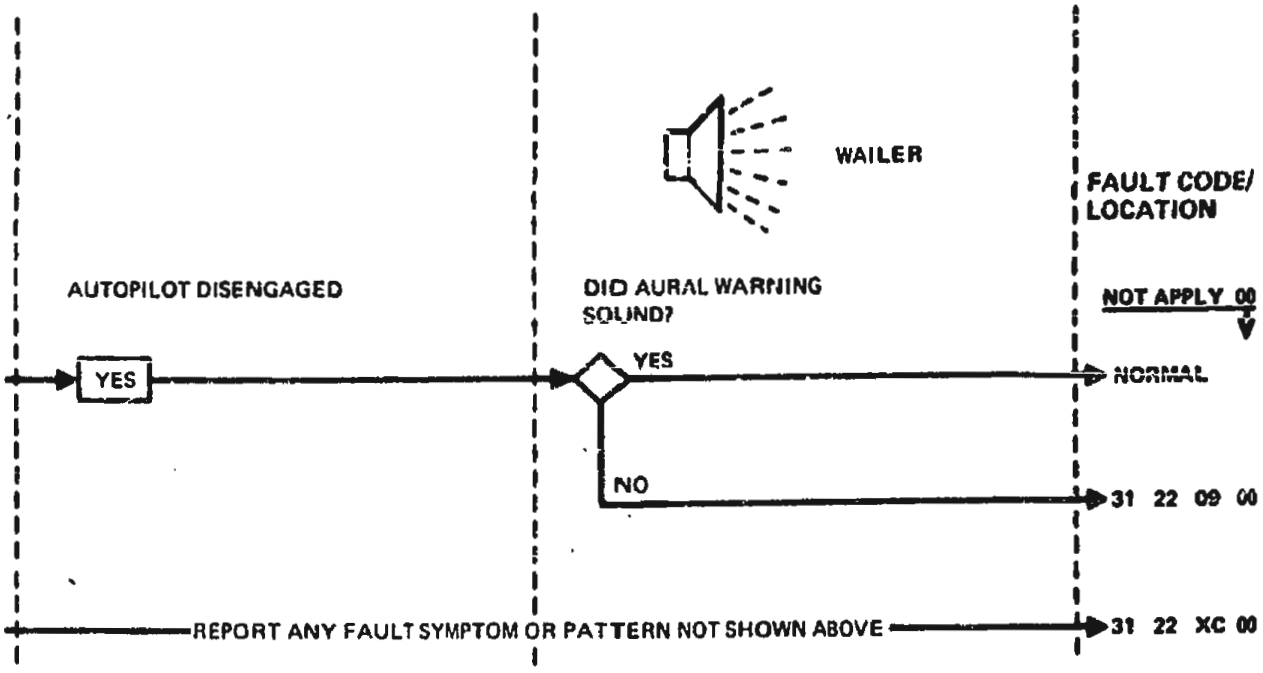
1A6	NO. 1 SYSTEM PITCH & ROLL	1K18	STBY INVERTER VOLTAGE	1L9	A/C CONFIG
1A24	NO. 2 SYSTEM PITCH & ROLL	1K19	CMPS CPLR 1	1L10	PROX SW PWR NO. 1
1B4	FCES CMPTR DC	1K27	ALT ALERT 1	1L11	PROX SW PWR NO. 2
1B5	FCES CMPTR AC & AOA	1L3	RAT AUTO DEPLOY	1L12	WARN HORN
1G8	AIR DATA CMPTR	1L6	CABIN PRESS & TEST	2H7	T/O AURAL WARN
1G27	AIR DATA CMPTR	1L7	OVSP	3H3	PROX SW NO. 2
1J21	ALT ALERT 2	1L8	MULT SND	3H4	PROX SW NO. 3

ED1-0001-31-009

R Aural Warning - Altitude Alert Test - Fault Codes
Figure 2

R EFFECTIVITY: ALL

050B

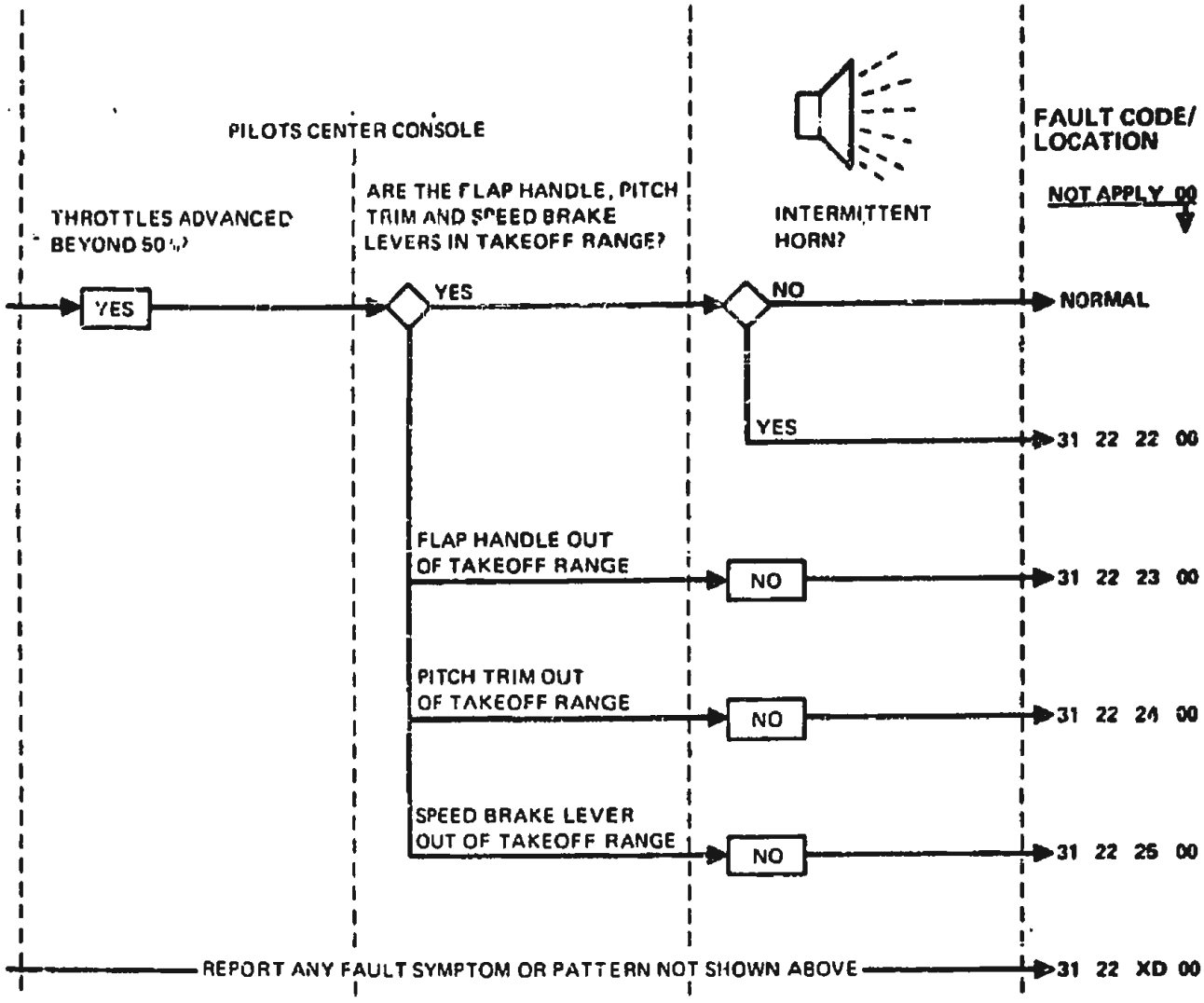


APPLICABLE CIRCUIT BREAKERS

1A6	NO. 1 SYSTEM PITCH & ROLL	1K18	STBY INVERTER VOLTAGE	1L9	A/C CONFIG
1A24	NO. 2 SYSTEM PITCH & ROLL	1K19	CMPS CPLR 1	1L10	PROX SW PWR NO. 1
1B4	FCES CMPTR DC	1K27	ALT ALERT 1	1L11	PROX SW PWR NO. 2
1B5	FCES CMPTR AC & AOA	1L3	RAT AUTO DEPLOY	1L12	WARN HORN
1G8	AIR DATA CMPTR	1L6	CABIN PRESS & TEST	2H7	T/O AURAL WARN
1G27	AIR DATA CMPTR	1L7	OVSP	3H3	PROX SW NO. 2
1J21	ALT ALERT 2	1L8	MULT SND	3H4	PROX SW NO. 3

EDI 0001-31-010

R Aural Warning - Autopilot Disconnect - Fault Codes
Figure 3



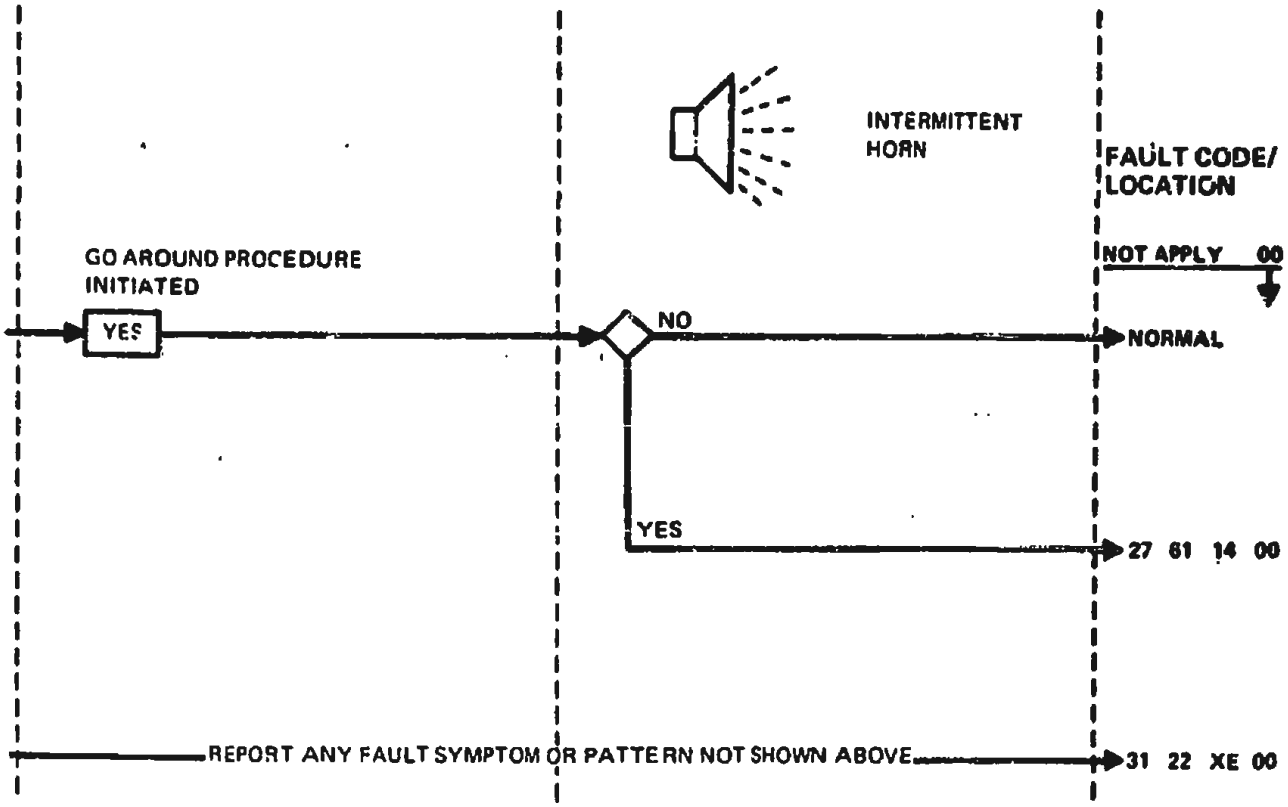
APPLICABLE CIRCUIT BREAKERS

1A6	NO. 1 SYSTEM PITCH & ROLL	1K18	STBY INVERTER VOLTAGE	1L9	A/C CONFIG
1A24	NO. 2 SYSTEM PITCH & ROLL	1K19	CMPS CPLR 1	1L10	PROX SW PWR NO. 1
1B4	FCES CMPTR DC	1K27	ALT ALERT 1	1L11	PROX SW PWR NO. 2
1B5	FCES CMPTR AC & AOA	1L3	RAT AUTO DEPLOY	1L12	WARN HORN
1G8	AIR DATA CMPTR	1L6	CABIN PRESS & TEST	2H7	T/O AURAL WARN
1G27	AIR DATA CMPTR	1L7	OVSP	3H3	PROX SW NO. 2
1J21	ALT ALERT 2	1L8	MULT SND	3H4	PROX SW NO. 3

ED1-0002-31-011

R Aural Warning - Unsafe Takeoff - Fault Codes
Figure 4

EFFECTIVITY: ALL



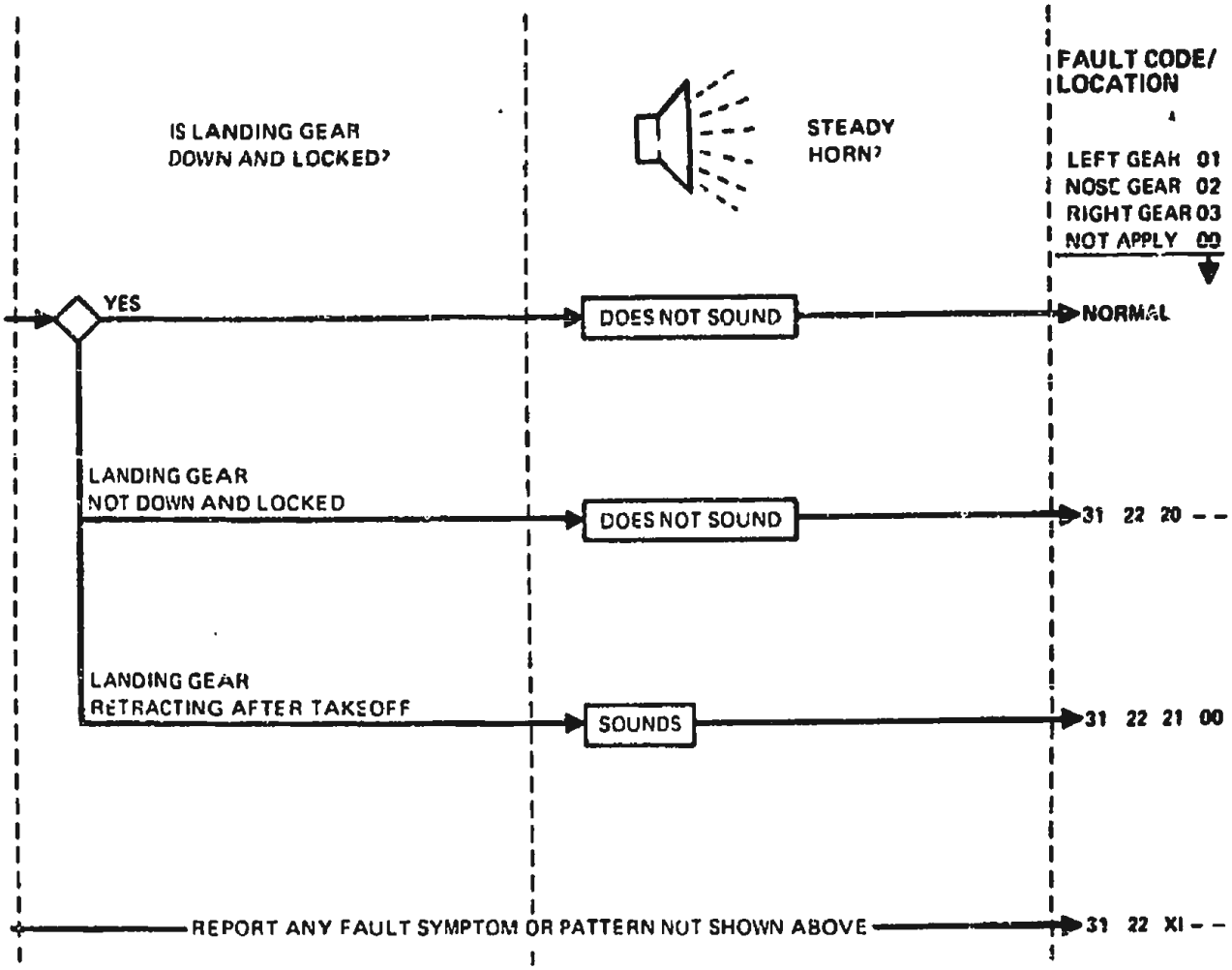
APPLICABLE CIRCUIT BREAKERS

1A6	NO. 1 SYSTEM PITCH & ROLL	1K18	STBY INVERTER VOLTAGE	1L9	A/C CONFIG
1A24	NO. 2 SYSTEM PITCH & ROLL	1K19	CMPS CPLR 1	1L10	PROX SW PWR NO. 1
1B4	FCES CMPTR DC	1K27	ALT ALERT 1	1L11	PROX SW PWR NO. 2
1B5	FCES CMPTR AC & AOA	1L3	RAT AUTO DEPLOY	1L12	WARN HORN
1G8	AIR DATA CMPTR	1L6	CABIN PRESS & TEST	2H7	T/O AURAL WARN
1G27	AIR DATA CMPTR	1L7	OVSP	3H3	PROX SW NO. 2
1J21	ALT ALERT 2	1L8	MULT SND	3H4	PROX SW NO. 3

EDI-0001-31-013

R Aural Warning - Unsafe Takeoff During Go Around - Fault Codes
Figure 5

R EFFECTIVITY: ALL

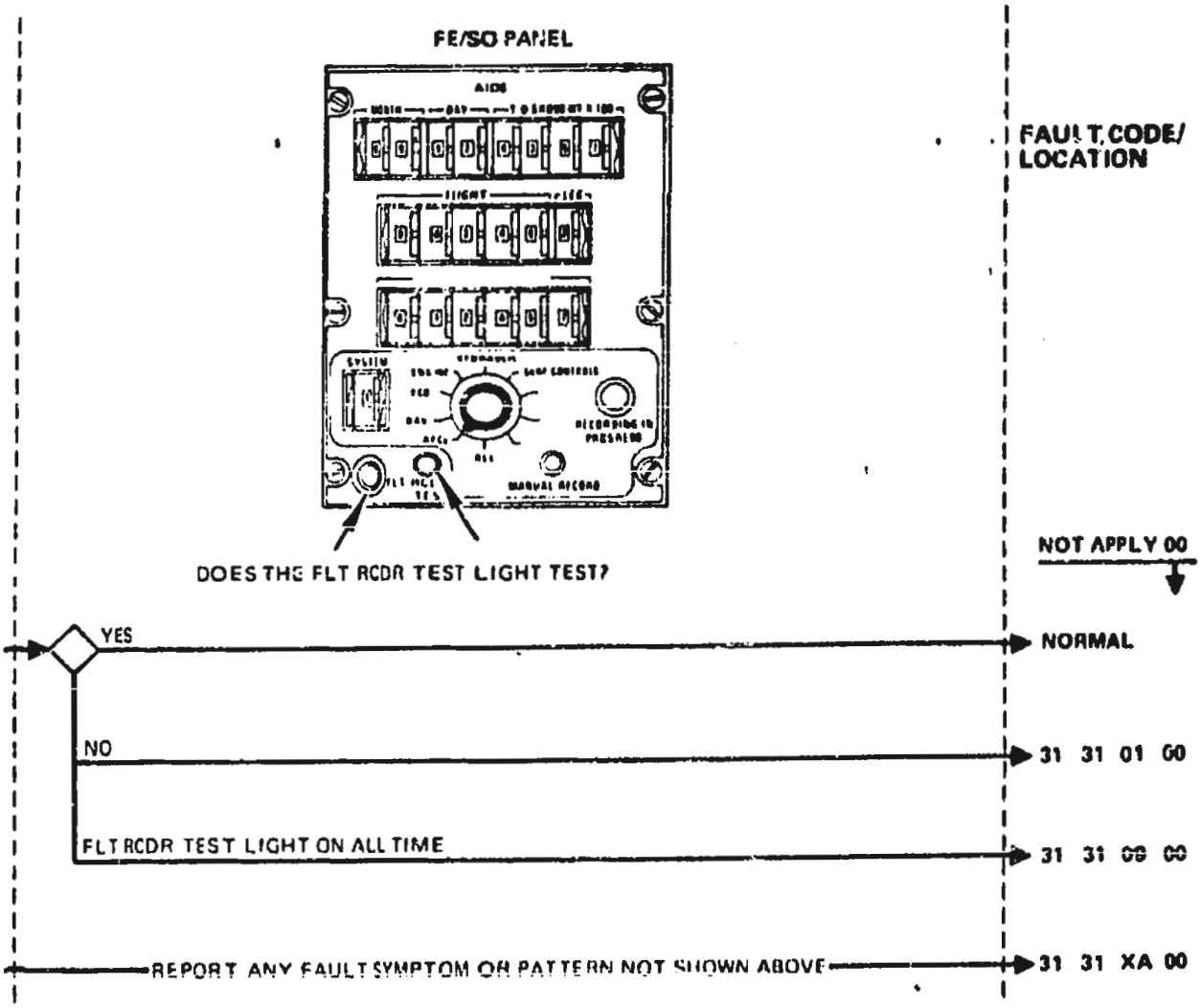


APPLICABLE CIRCUIT BREAKERS

1A6	NO. 1 SYSTEM PITCH & ROLL	1K18	STBY INVERTER VOLTAGE	1L9	A/C CONFIG
1A24	NO. 2 SYSTEM PITCH & ROLL	1K19	CMPS CPLR 1	1L10	PROX SW PWR NO. 1
1B4	FCES CMPTR DC	1K27	ALT ALERT 1	1L11	PROX SW PWR NO. 2
1B5	FCES CMPTR AC & AOA	1L3	RAT AUTO DEPLOY	1L12	WARN HORN
1G8	AIR DATA CMPTR	1L6	CABIN PRESS & TEST	2H7	T/O AURAL WARN
1G27	AIR DATA CMPTR	1L7	OVSP	3H3	PROX SW NO. 2
1J21	ALT ALERT 2	1L8	MULT SND	3H4	PROX SW NO. 3

ED1-0004-31-017

R Aural Warning - Unsafe Landing - Fault Codes
Figure 6



APPLICABLE CIRCUIT BREAKERS

1H10	IND LT RAT	2G4	RUNWAY TURNOFF LH
1J24	SURF POSN IND	2G5	STROBE

LD1 0002 31 018

R

Flight Recorder - Fault Codes
Figure 7

EFFECTIVITY: ALL

31-FAULT CODE DIAGRAM

FAULT CODE INDEX
TABLE 1

	FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
	31 22 XA 00	1. An Aural Warning - Test fault was encountered by the crew which is not covered in the fault code diagram. (Ref. Fault Code diagram for flight crew actions.)
R		2. 31-22-00 Fig. 103 Block 1
	31 22 XB 00	1. An Aural Warning - Altitude Alert Test fault was encountered by the crew which is not covered in the fault code diagram. (Ref. Fault Code diagram for flight crew actions.)
R		2. 31-22-00 Fig. 108 Block 1
	31 22 XC 00	1. An Aural Warning - Autopilot Disconnect fault was encountered by the crew which is not covered in the fault code diagram. (Ref. Fault Code diagram for flight crew actions.)
R		2. 31-22-00 Fig. 109 Block 1
	31 22 XD 00	1. An Aural Warning - Unsafe Takeoff fault was encountered by the crew which is not covered in the fault code diagram. (Ref. Fault Code diagram for flight crew actions.)
R		2. 31-22-00 Fig. 104 Block 1
	31 22 XE 00	1. An Aural Warning - Unsafe Takeoff During Go Around fault was encountered by the crew which is not covered in the fault code diagram. (Ref. Fault Code diagram for flight crew actions.)
R		2. 27-61-00 Fig. 114 Block 1
	31 22 XI __	1. An Aural Warning - Unsafe Landing fault was encountered by the crew which is not covered in the fault code diagram. (Ref. Fault Code diagram for flight crew actions.)
R		2. 31-22-00 Fig. 105 Block 1

FAULT CODE INDEX
TABLE 1 (CONTINUED)

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
31 31 XA 00	1. A Flight Recorder fault was encountered by the crew which is not covered in the fault code diagram. (Ref. Fault Code diagram for flight crew actions.)
R	2. 31-31-00 Table 102
R	31-31-01 Page 401
R	31-31-05 Page 401
31 22 01 00	1. AIRCRAFT OVERSPEED aural warning (clacker) will not test.
	2. 31-22-00 Fig. 107 Block 1
31 22 02 00	1. NOT USED.
31 22 03 00	1. ALTITUDE ALERT aural warning (musical C chord) will not test.
	2. 31-22-00 Fig. 108 Block 1
31 22 04 00	1. UNSAFE LANDING aural warning (steady horn) will not test.
	2. 31-22-00 Fig. 105 Block 1
31 22 05 00	1. NOT USED.
31 22 06 00	1. NOT USED.
31 22 07 00	1. UNSAFE CABIN PRESSURE aural warning (intermittent horn) will not test.
	2. 31-22-00 Fig. 103 Block 2
31 22 08 00	1. UNSAFE TAKEOFF aural warning (intermittent horn) will not test.
	2. 31-22-00 Fig. 104 Block 1

FAULT CODE INDEX
TABLE 1 (CONTINUED)

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
31 22 09 00	1. AUTOPILOT DISCONNECT aural warning (wailer) failed to sound when autopilot disengaged. 2. 31-22-00 Fig. 108 Block 1
31 22 10 00	1. NOT USED.
31 22 11 00	1. NOT USED.
31 22 12 00	1. NOT USED.
31 22 13 00	1. NOT USED.
31 22 14 00	1. NOT USED.
31 22 15 00	1. NOT USED.
31 22 16 00	1. NOT USED.
31 22 17 00	1. NOT USED.
31 22 18 00	1. NOT USED.
31 22 19 00	1. NOT USED.
31 22 20 __	1. (01=Left Gear, 02=Nose Gear, 03=Right Gear) UNSAFE LANDING aural warning (steady horn) failed to sound when gear not down-and-locked. 2. 31-22-00 Fig. 105 Block 1
31 22 21 00	1. UNSAFE LANDING aural warning (steady horn) sounds while gear is retracting after takeoff. 2. 31-22-00 Fig. 111 Block 1
31 22 22 00	1. UNSAFE TAKEOFF aural warning (intermittent horn) sounds when throttles advanced for takeoff. 2. 31-22-00 Fig. 104 Block 1

FAULT CODE INDEX
TABLE 1

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
31 22 23 00	1. UNSAFE TAKEOFF aural warning (intermittent horn) failed to sound when throttles advanced beyond 50% power and flap handle not within takeoff range.
	2. 31-22-00 Fig. 104 Block 1
31 22 24 00	1. UNSAFE TAKEOFF aural warning (intermittent horn) failed to sound when throttles advanced beyond 50% power and trim not within takeoff range.
	2. 31-22-00 Fig. 104 Block 1
31 22 25 00	1. UNSAFE TAKEOFF aural warning (intermittent horn) failed to sound when throttles advanced beyond 50% power and speedbrake lever not full forward.
	2. 31-22-00 Fig. 104 Block 1
31 31 01 00	1. FLT RCDR light on AIDS Control Unit does not come on when FLT RCDR TEST pressed.
	2. 31-31-01 Page 401
31 31 02 00	1. NOT USED.
31 31 03 00	1. NOT USED.
31 31 04 00	1. NOT USED.
31 31 05 00	1. NOT USED.
31 31 06 00	1. NOT USED.
31 31 07 00	1. NOT USED.
31 31 08 00	1. NOT USED.
31 31 09 00	1. Flight Recorder test light on all the time.
	2. 31-31-00 Fig. 103 Block 1

INSTRUMENTS - DESCRIPTION AND OPERATION

R 1. General

R This chapter describes the instrument panels, electronic clock
R system, proximity switch system including the aural warning
R system, digital flight data recorder system, weight and balance
R system, and aircraft integrated data system (AIDS).

R Illustrations of instrument panels and system control panels and
R assoicated components are included throughout the chapter.
R Schematic diagrams present major signal flow within each system
R and referenced, where applicable, to other aircraft systems.

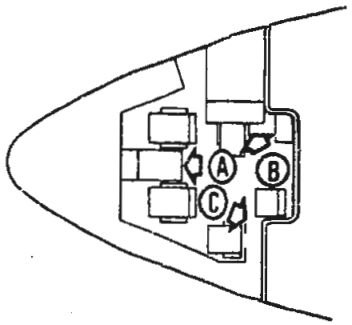
PANELS - DESCRIPTION AND OPERATION

1. General

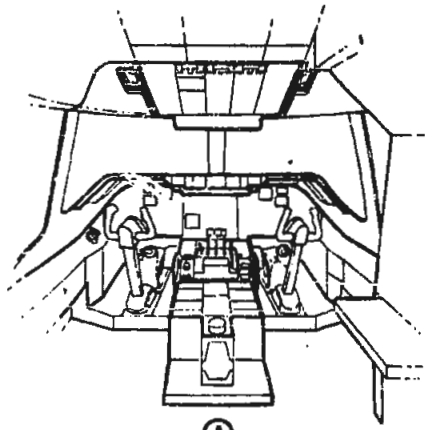
R Instrument panels (Ref. Fig. 1) are located in the flight
R station, Flight Engineer/Second Officers station, observers
R station, fueling/defueling station, and hydraulic service center compartment. The panels support the aircraft instruments, controls, switchlights, and the annunciator and status indicators used by the flight crew in operating and monitoring the various aircraft functional systems.

The Captains and First Officers main and center instrument panels are supported on sliding track mechanisms and retained in the panel support frames by quick-disconnect fasteners. This provision allows the panels to be easily withdrawn from the support frame as necessary for access to areas behind the panel.

The Flight Engineer/Second Officers station contains sub-panel segments, some secured to the console structure by quick-disconnect fasteners and others supported on sliding tracks and retained in position in a manner similar to the flight station panels. Individual instruments are front-mounted and are supported in the panels by clamps secured to the panel. Instruments may be removed from the front of the panel by loosening the clamp tension screw and withdrawing the instrument from the panel. Quick-disconnect electrical connectors permit disengagement of individual instruments and the panel assembly from the aircraft electrical systems.



FLIGHT COMPARTMENT
ZONE 210



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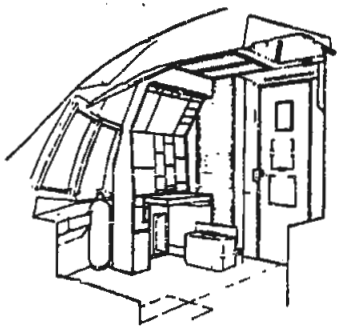
(REF. 31-11-00)



(B)
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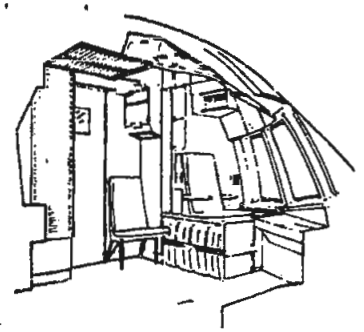
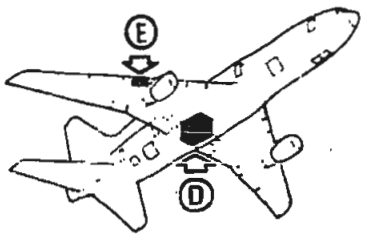
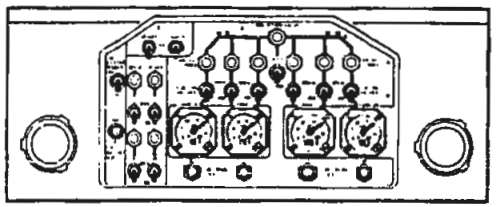
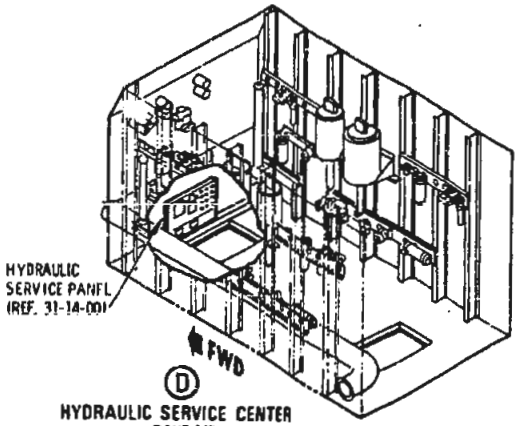


(C)
OBSERVER STATION
(REF. 31-15-00)





(E)
FUELING/DEFUELING PANEL
(REF. 31-13-00)



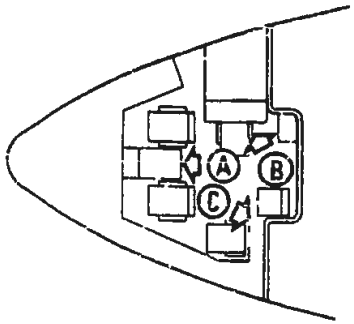
(D)
HYDRAULIC SERVICE CENTER
ZONE 147

M1-0005-31-001

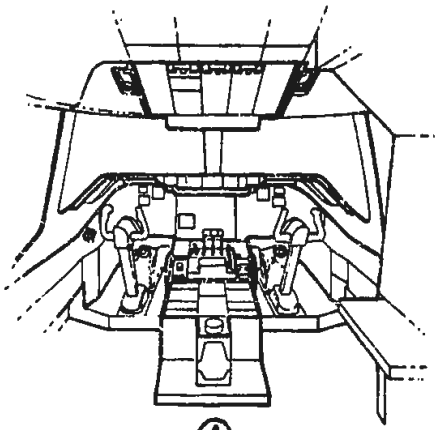
R
R Instrument Panel Locations
Figure 1

EFFECTIVITY: 001-024, 027

0018



FLIGHT COMPARTMENT
ZONE 210



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FLIGHT STATION
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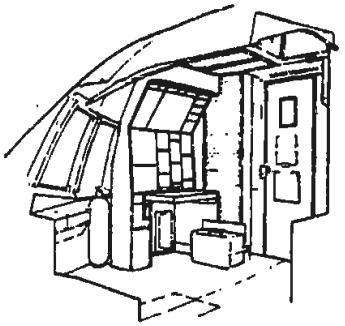

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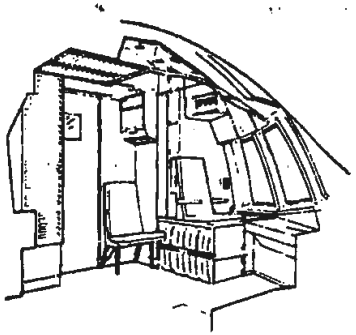
FLIGHT ENGINEER STATION
(REF. 31-12-00)



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OBSERVER STATION
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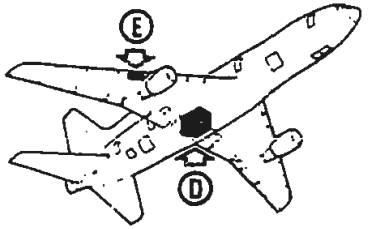
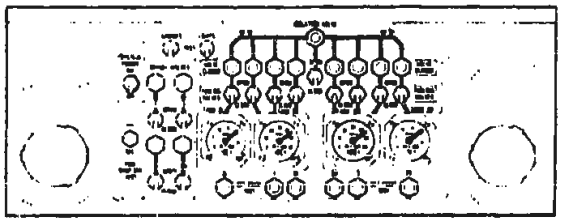
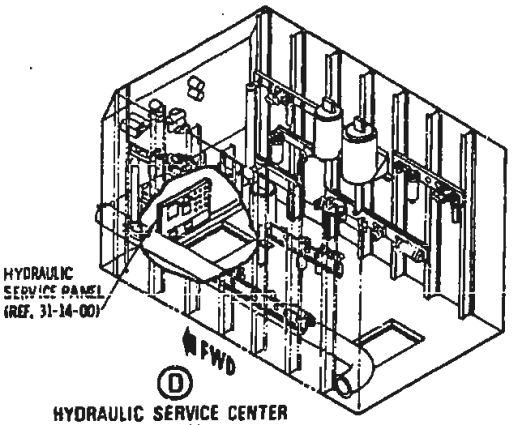




Ⓔ
FUELING/DEFUELING PANEL
(REF. 31-13-00)



Ⓓ
HYDRAULIC SERVICE CENTER
ZONE 147

M1-0001-31-343

R Instrument Panel Location
R Figure 1

R EFFECTIVITY: 025-026, 028-999
R
001B

FLIGHT STATION - DESCRIPTION AND OPERATION

1. General

R The flight station contains the Captains and First Officers
R instrument and control panels (Ref. Fig. 1). The panels located in the flight station are:

Captains instrument panel (Ref. Fig. 2)

Pilots center instrument panel (Ref. Fig. 3)

First Officers instrument panel (Ref. Fig. 4)

Pilots glareshield panel (Ref. Fig. 5)

Pilots eyebrow panel (Ref. Fig. 6)

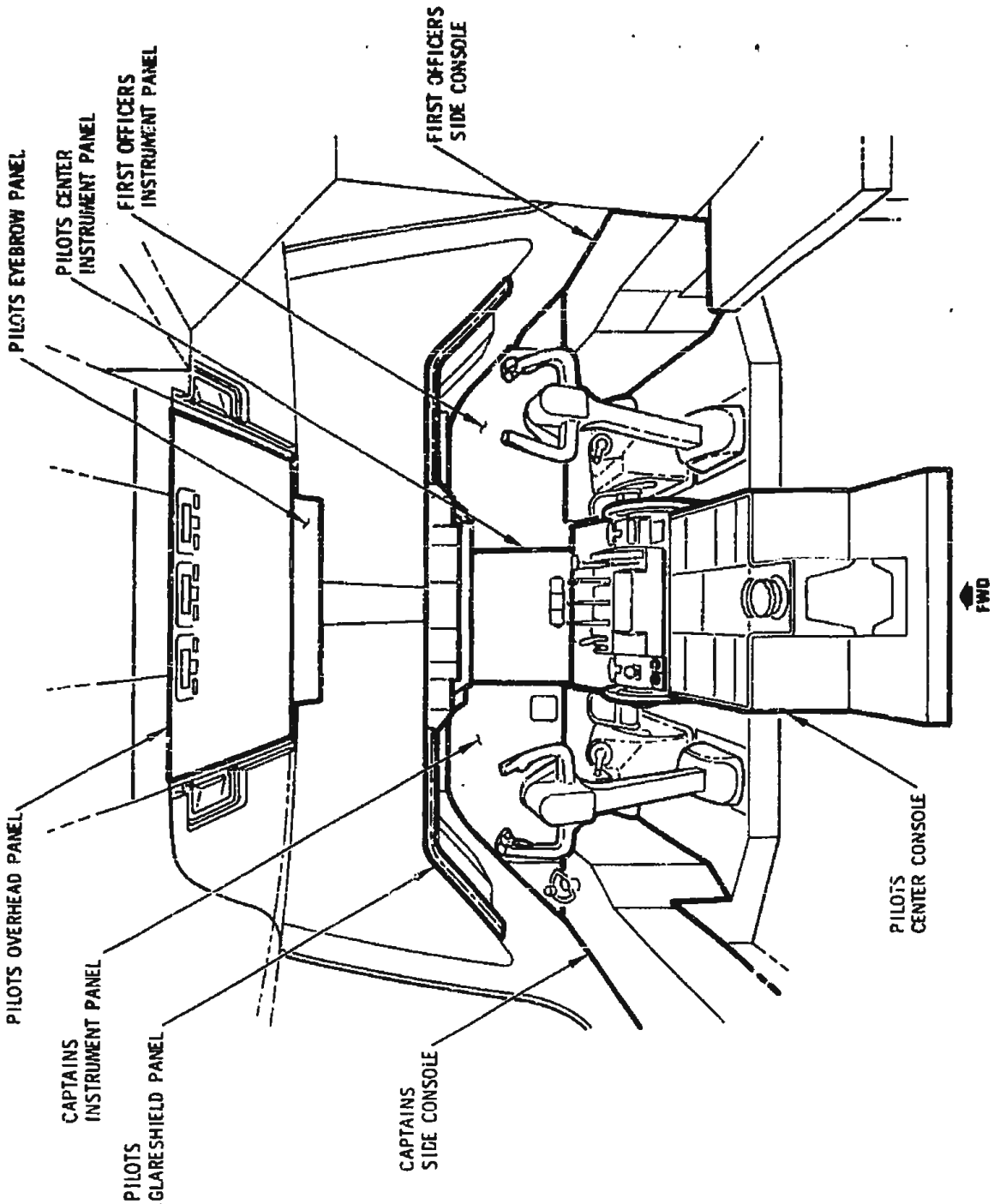
Pilots overhead panel (Ref. Fig. 7)

Captains side console (Ref. Fig. 8)

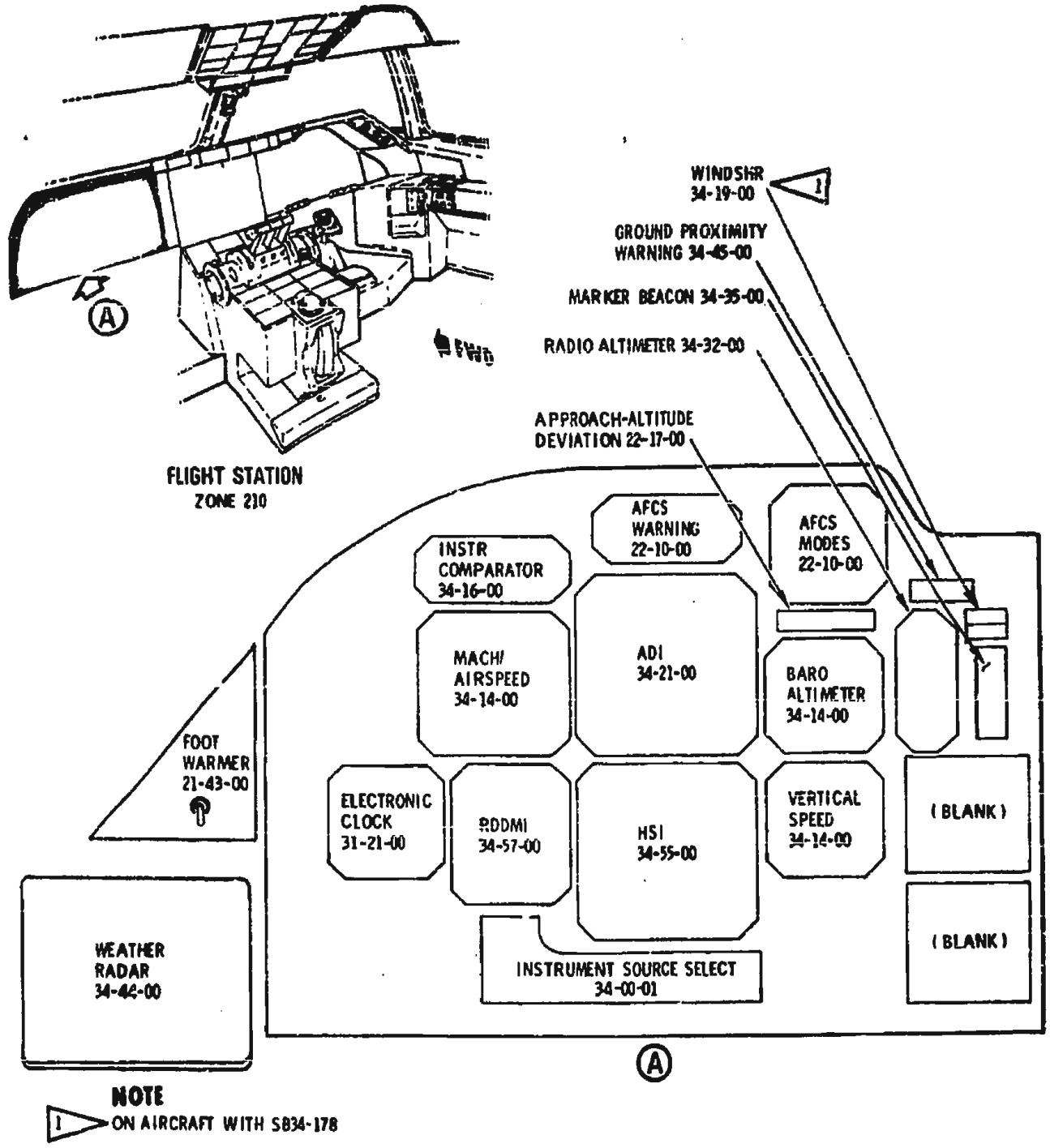
Pilots center console (Ref. Fig. 9)

First Officers side console (Ref. Fig. 10)

HH 4542
M1-0102-31-002



Flight Station Panel Locations
Figure 1



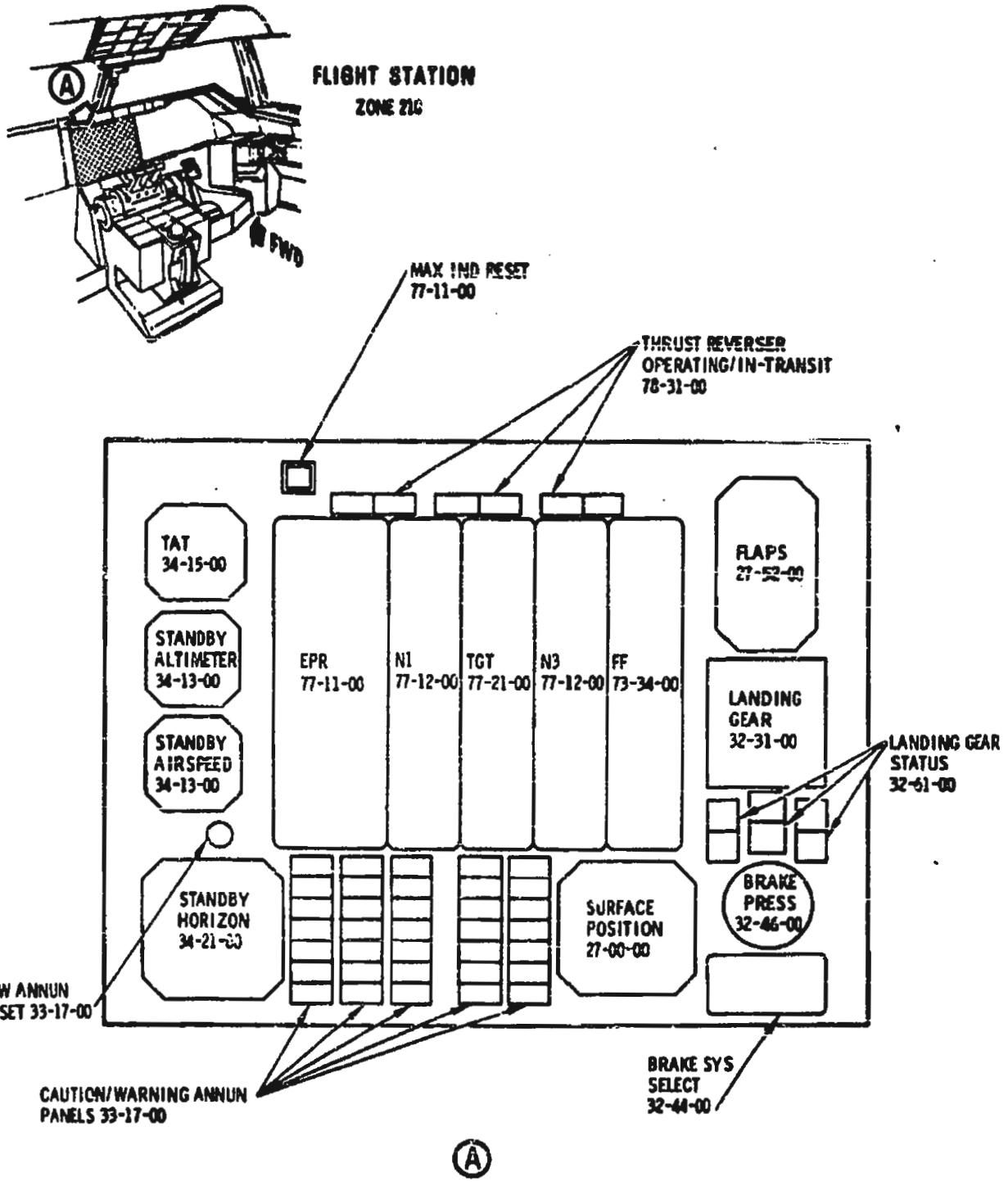
M1-0006-31-003

CR
CR

Captains Instrument Panel
Figure 2

EFFECTIVITY: ALL

001B

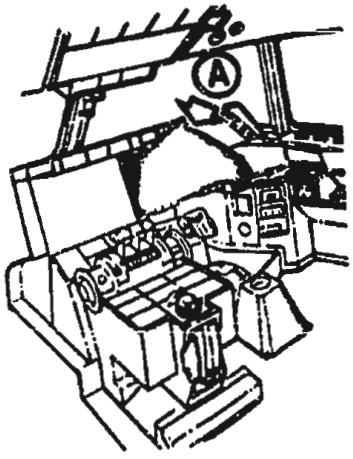


M1-0004-31-00A

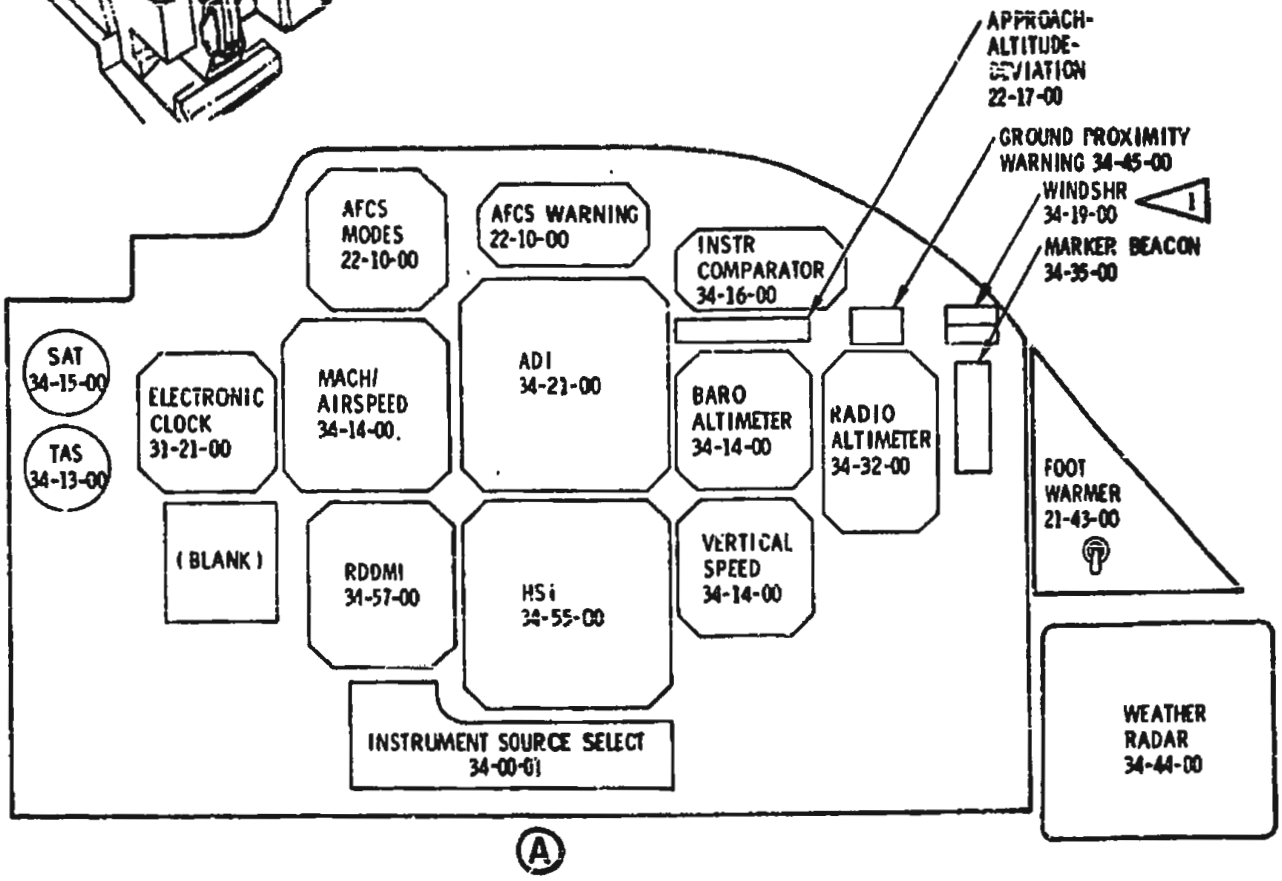
R Pilots Center Instrument Panel
R Figure 3

EFFECTIVITY: ALL

0018



FLIGHT STATION
ZONE 210



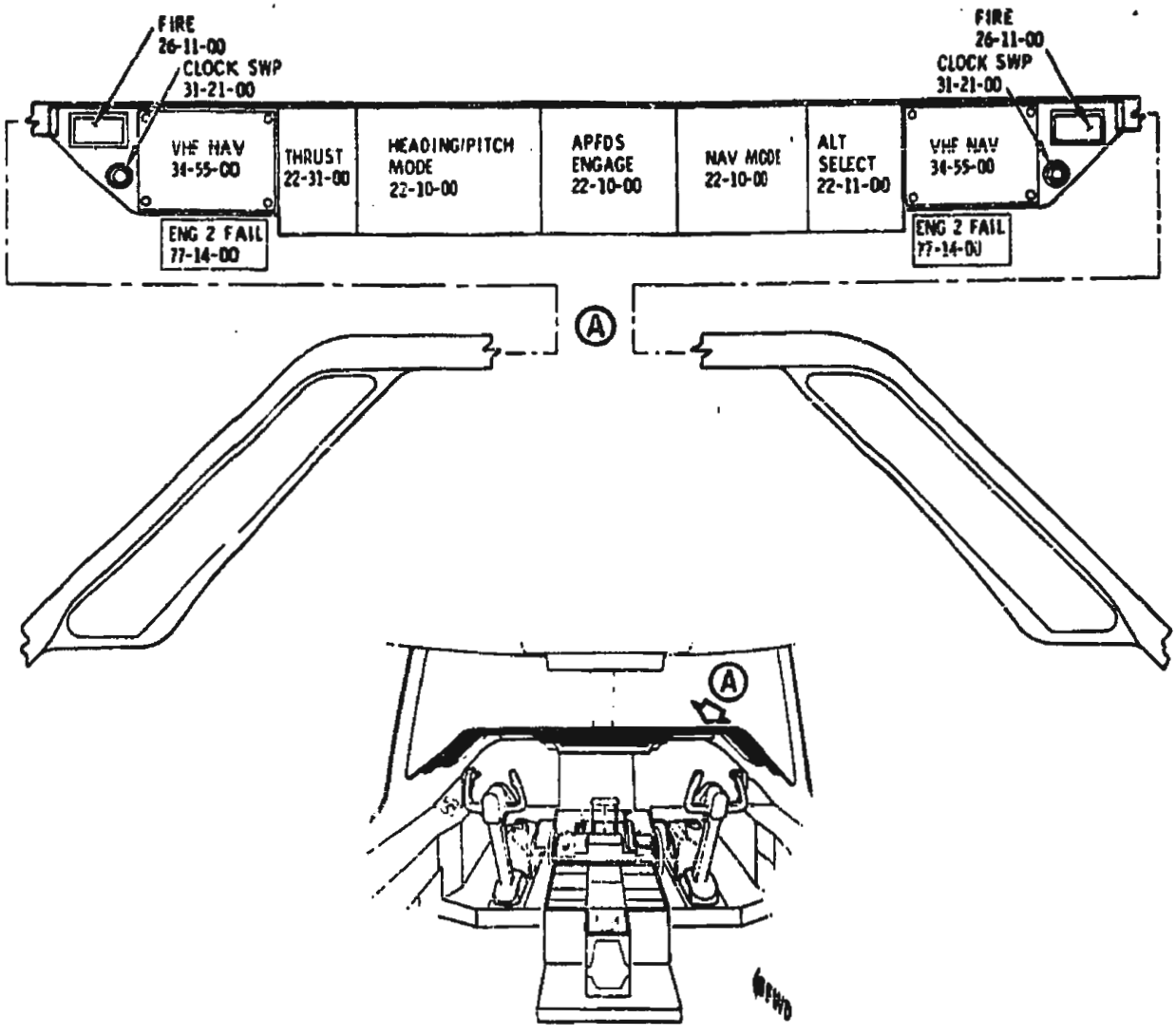
NOTE
1 ON AIRCRAFT WITH SB34-178

M1-0006-31-005

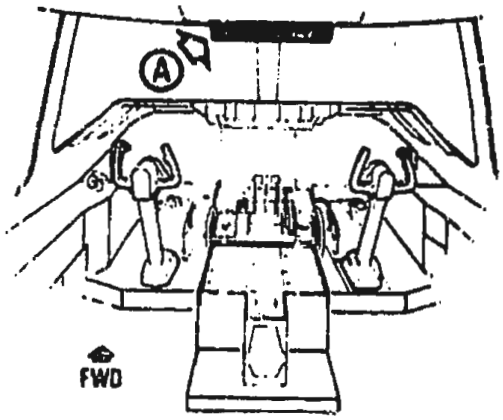
CR First Officers Instrument Panel
CR Figure 4

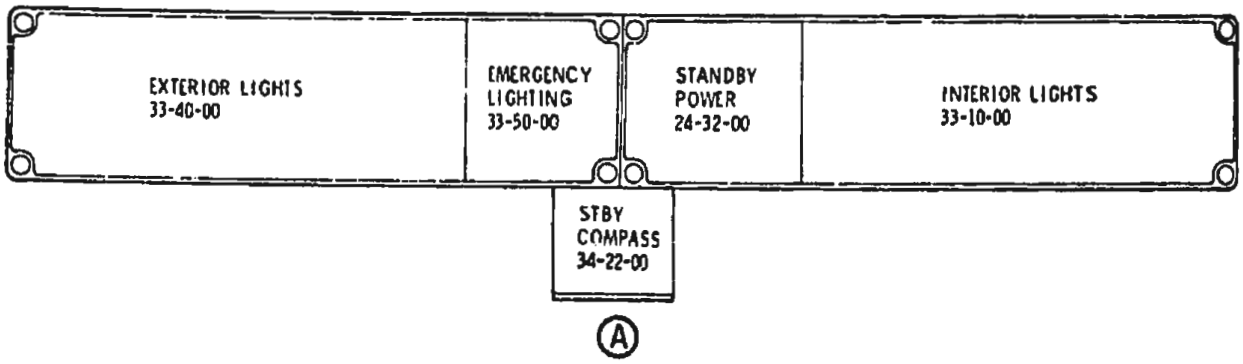
EFFECTIVITY: ALL

001B



Pilots Glareshield Panel
Figure 5

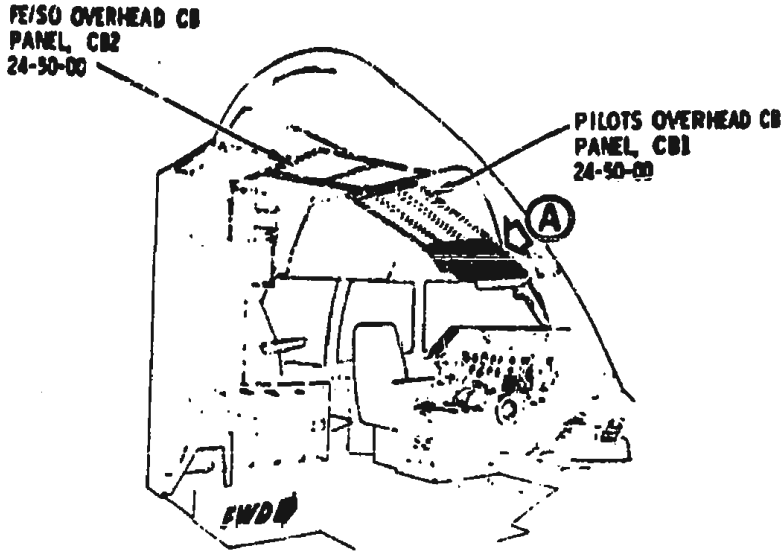




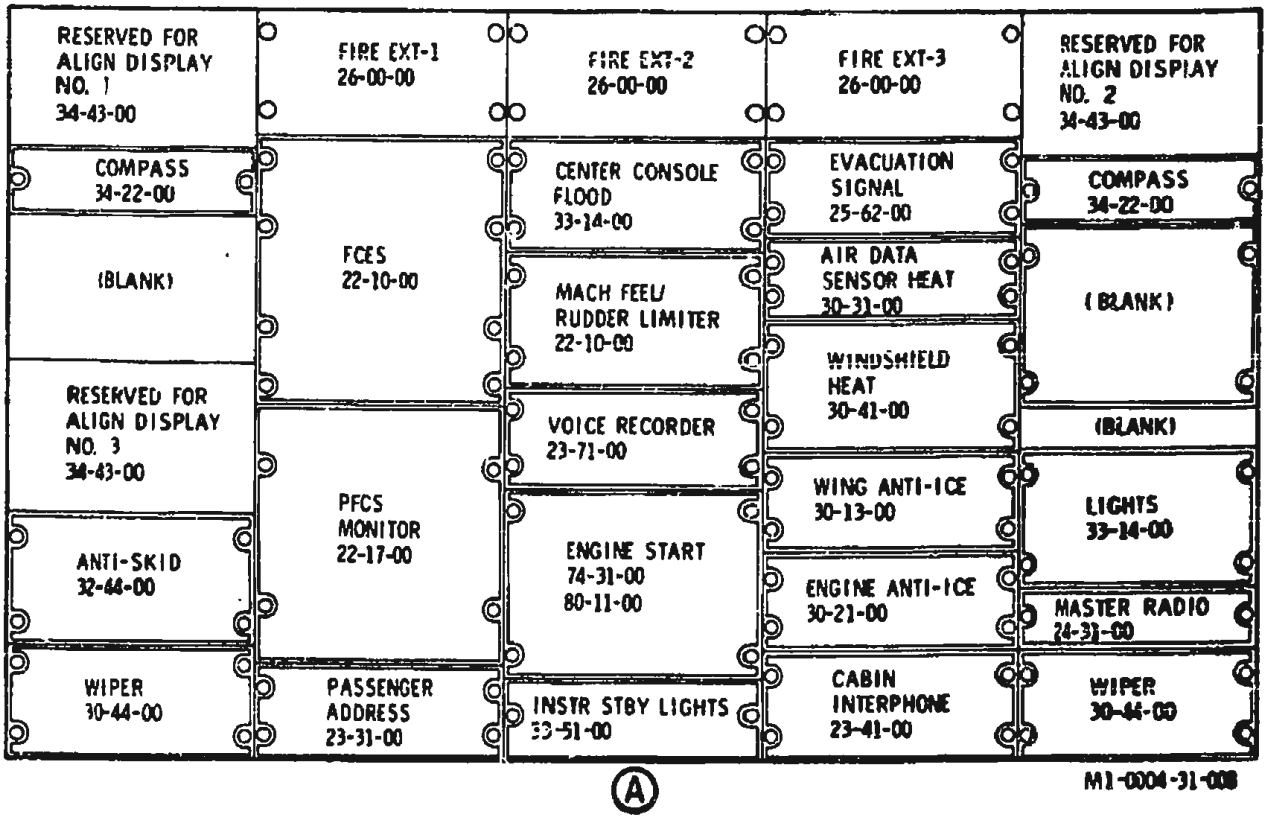
M1-0001-31-007

R
R

Pilots Eyebrow Panel
Figure 6



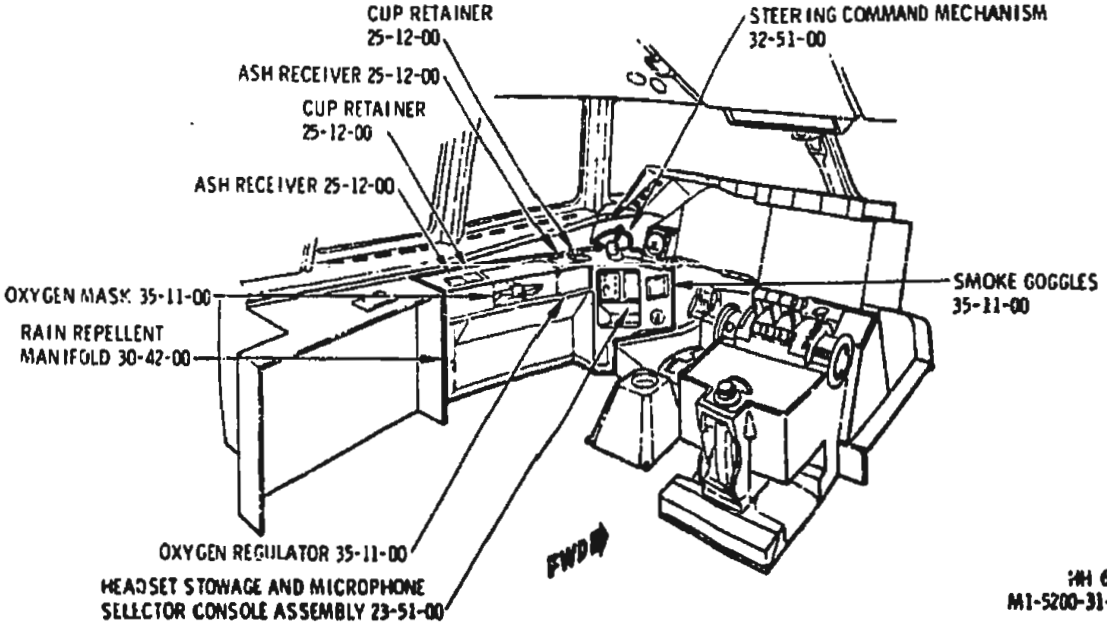
FLIGHT STATION
ZONE 210



CR
CR

Pilots Overhead Panel
Figure 7

EFFECTIVITY: ALL

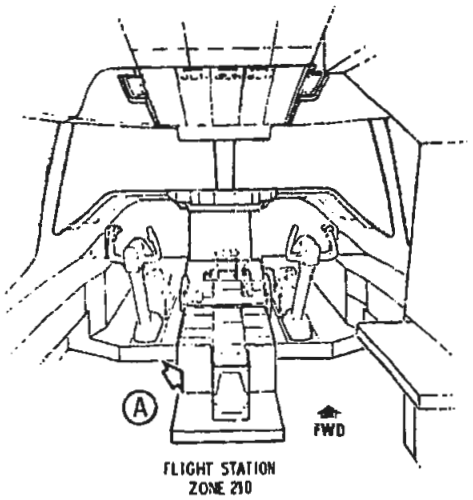


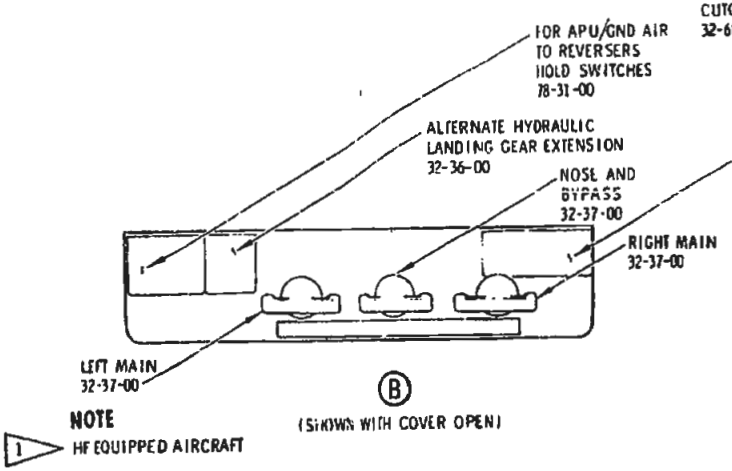
R
R

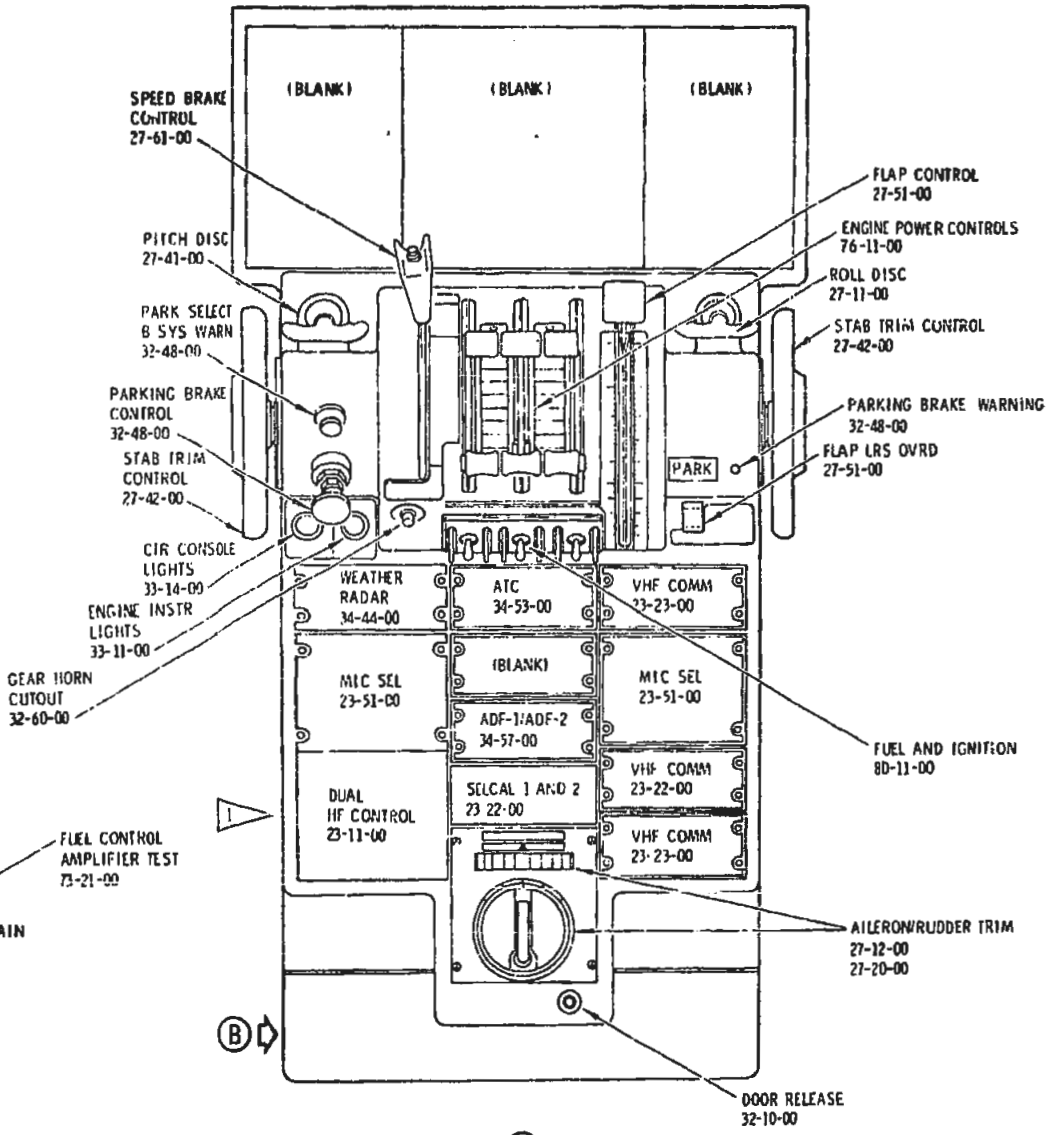
Captains Side Console
Figure 8

EFFECTIVITY: ALL

0018







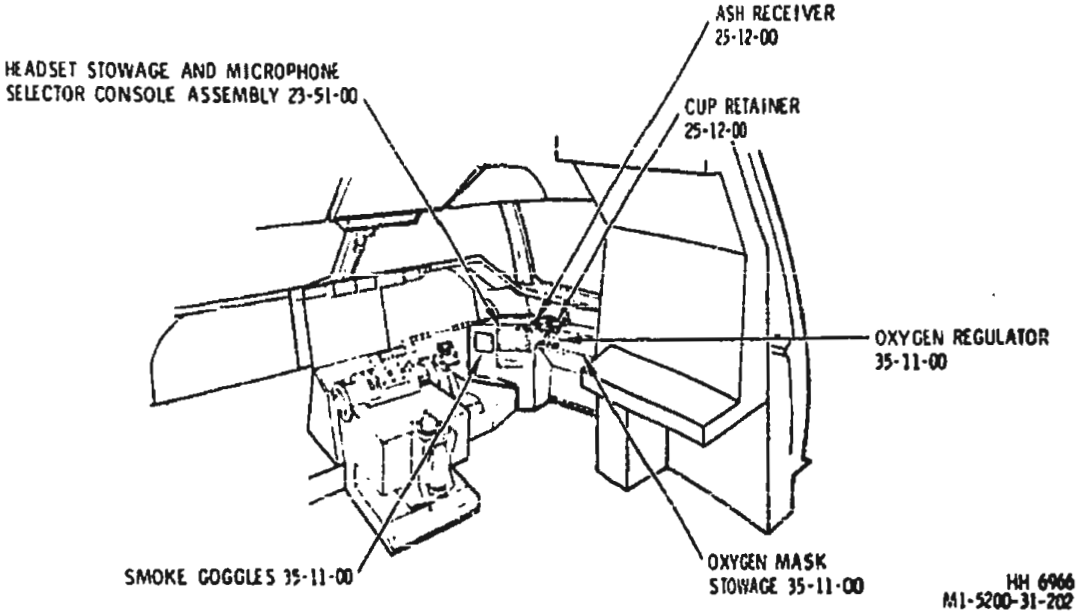
M1-0006-31-010

CR
CR

Pilots Center Console
Figure 9

EFFECTIVITY: ALL

001B



First Officers Side Console
Figure 10

CAPTAINS INSTRUMENT PANEL - REMOVAL AND INSTALLATION

1. Equipment and Materials

Protective Caps

2. Referenced Procedures

	22-10-05	AFCS MODES Annunciator Indicator - Adjustment and Test
	22-10-06	AFCS WARNING Indicator - Adjustment and Test
R	22-10-31	FD BASIC MODE - Fault Isolation
R	22-31-00	Speed Control System - Fault Isolation
	24-00-00	Electrical Power - Maintenance Practices
	27-00-01	Surface Position Indicator - Adjustment and Test
	29-11-00	Hydraulic Power System - Maintenance Practices
	31-21-00	Electronic Clock System - Adjustment and Test
	34-00-01	Instrument Source Select Panel - Adjustment and Test
	34-14-00	Central Air Data Computer - Adjustment and Test
	34-16-00	Central Instrument Warning System - Adjustment and Test
	34-19-00	Windshear Warning and Guidance System - Adjustment and Test (On aircraft with SB34-178)
	34-21-00	Attitude Reference System - Adjustment and Test
	34-22-00	Magnetic Heading Reference System - Adjustment and Test
	34-32-00	Radio Altimeter System - Adjustment and Test
	34-33-00	Instrument Landing System - Adjustment and Test
	34-35-00	Marker Beacon System - Adjustment and Test

34-44-05 Weather Radar Indicator - Removal and Installation

34-51-00 DME - Adjustment and Test

34-55-00 VOR System - Adjustment and Test

34-57-00 ADF System - Adjustment and Test

3. Removal/Installation

A. Removal

(1) On Pilots overhead circuit breaker panel CB1, zone 210, open and tag the following circuit breakers:

AVIONICS FLIGHT CONTROL SYSTEM - AUTO - SERVO (A1),

AVIONICS FLIGHT CONTROL SYSTEM - NO. 1 SYSTEMS - SPEED - CONT (A2),

AVIONICS FLIGHT CONTROL SYSTEM - NO. 1 SYSTEMS - PITCH - & ROLL (A6),

R On aircraft with SB34-178,
R WDSHR AC (A19),

AVIONICS FLIGHT CONTROL SYSTEM - NO. 2 SYSTEMS - SPEED - CONT (A20),

AVIONICS FLIGHT CONTROL SYSTEM - NO. 2 SYSTEMS - PITCH - & ROLL (A24),

R On aircraft with SB34-178,
R WDSHR DC (A27),

AVIONICS FLIGHT CONTROL SYSTEM - AFCS - MODE - IND (B1),

ELECT - CLOCK - SYSTEM (B18),

NO. 1 NAVIGATION - RADIO - ALTM (D4),

NO. 1 NAVIGATION - DME (D5),

NO. 1 NAVIGATION - ADF (D6),

NO. 1 NAVIGATION - MARKER - BEACON (D7),

NO. 1 NAVIGATION - INSTR - CMPRN - MON PWR (D8),

NO. 2 NAVIGATION - DME (D23),

NO. 2 NAVIGATION - ADF (D24),

NO. 1 NAV & INSTR - ALT SOURCE SEL - CAPT - INSTR (E1),

R NO. 1 NAV & INSTR - VERT - SP IND (E4),

NO. 2 NAV & INSTR - CAPT - RDDMI (E20),

NO. 2 NAV & INSTR - INS-3 - GYRO 3 (E24),

NO. 1 INSTRUMENT - CAPT - INS/ - MACH (F1),

NO. 1 INSTRUMENT - CAPT - ADI (F2),

NO. 1 INSTRUMENT - CAPT - HSI (F3),

NO. 1 INSTRUMENT - CAPT - ALTM (F4),

NO. 1 NAVIGATION - VHF DC - VOR - RCVR (G1),

NO. 1 NAVIGATION - ILS (G4),

NO. 1 NAVIGATION - VG/ - INS-1 (G6),

NO. 1 NAVIGATION - CMPS - COUPLES (G7),

NO. 1 NAVIGATION - AIR - DATA - CMPTR (G8),

NO. 2 NAVIGATION - VHF DC - VOR - RCVR (G19),

NO. 2 NAVIGATION - ILS (G22),

NO. 2 NAVIGATION - CMPS - CRLR (G26),

NO. 2 NAVIGATION - AIR - DATA - CMPTR (G27),

26 VAC NAV EXCITATION - RDDMI 2 (J20),

26 VAC NAV EXCITATION - VOR-2 (J22),

26 VAC NAV EXCITATION - VOR-1 (K21),

26 VAC NAV EXCITATION - RDDMI 1 (K25),

5 VAC INSTRUMENT LIGHTING - CAPT - L (L20),

5 VAC INSTRUMENT LIGHTING - CAPT - R (L21).

On FE/SO overhead circuit breaker panel CB2, zone 215, open and tag circuit breaker AFCS WARNING - CAPT (K18).

On FE/SO aft circuit breaker panel CB3, zone 215, open and tag the following circuit breakers:

IND LT - PFCS - ADS/DH (G8),

IND LT - FLT CONT - ALT ALERT (G9),

R INTERIOR LIGHTS - CAPT - INSTR (J12),

(2) Turn on electrical power (Ref. 24-00-00).

WARNING: VERIFY THE FOLLOWING BEFORE PRESSURIZING ANY HYDRAULIC SYSTEM:

- LANDING GEAR DOWNLOCK SAFETY PINS AND DOOR LOCK SAFETY DEVICES ARE INSTALLED.
- TRAVEL AREAS OF ALL FLIGHT CONTROL SURFACES AND MAIN GEAR DOORS ARE CLEAR OF ALL PERSONNEL.
- THE AFFECTED HYDRAULIC SYSTEMS CAN ACCEPT HYDRAULIC PRESSURE.

(3) Pressurize hydraulic power system A or B (Ref. 29-11-00).

(4) Set speed brake handle to MAX (full aft) position.

(5) Ensure that power control levers are full aft.

(6) Release Captains instrument panel quick-disconnect fasteners (Ref. Fig. 401).

(7) Depress secondary latch button and pull instrument panel from support frame until slide assembly stops engage.

(8) Disconnect electrical harnesses from instrument panel connectors and stow clear of panel and instruments.

(9) While second man holds control column in full aft position, release panel tilt latches and tilt panel down.

(10) Release slide assembly stops and withdraw panel clear of slides. Move panel inboard over center console, zone 210, and remove from flight station.

(11) Allow control column to move forward to its neutral position.

(12) Depressurize hydraulic system (Ref. 29-11-00) and turn off electrical power (Ref. 24-00-00).

(13) Install protective caps on exposed electrical connectors.

B. Installation

(1) Verify that circuit breakers opened in Step 3A(1) are open and tagged.

(2) Turn on electrical power (Ref. 24-00-00).

WARNING: VERIFY THE FOLLOWING BEFORE PRESSURIZING ANY HYDRAULIC SYSTEM:

- LANDING GEAR DOWNLOCK SAFETY PINS AND DOOR LOCK SAFETY DEVICES ARE INSTALLED.
- TRAVEL AREAS OF ALL FLIGHT CONTROL SURFACES AND MAIN GEAR DOORS ARE CLEAR OF ALL PERSONNEL.
- THE AFFECTED HYDRAULIC SYSTEMS CAN ACCEPT HYDRAULIC PRESSURE.

(3) Pressurize hydraulic system A or B (Ref. 29-11-00).

(4) Set speed brake handle to MAX (full aft) position.

(5) Set power control levers to full aft position.

(6) Release Captains instrument panel tilt latches and tilt panel down (Ref. Fig 401).

(7) While second man holds control column full aft, move instrument panel from a position just over the center console to a position that aligns the slide assembly components.

(8) Engage slides and move panel forward into support frame, then back out until slide assembly stops engage.

(9) Move panel up to engage tilt latches.

(10) Allow control column to move forward to its neutral position.

(11) Depressurize the hydraulic system (Ref. 29-11-00) and turn off electrical power (Ref. 24-00-00).

(12) Remove protective caps from electrical connectors and connect electrical harnesses to panel and instrument receptacles.

(13) Depress slide assembly stop locks and push panel forward until secondary latch engages and holds panel in the support frame.

(14) Engage panel quick-disconnect fasteners.

(15) Close circuit breakers opened in Step 3A(1).

(16) Check operation of Captains instrument panel indicators as follows:

(a) Turn on electrical power (Ref. 24-00-00)

(b) On LIGHTS panel located on pilots overhead panel, depress TEST switch to ON. On Captains instrument panel, verify that the following lights are on:

Radio altimeter DH light

APPROACH, ALTITUDE, and DEVIATION lights

Instrument source select ALTN lights

R On aircraft with SB34-178,
R red WINDSHR lights

R On aircraft with SB34-178,
R amber WINDSHR lights

(c) On LIGHTS panel, depress (release) TEST switch. All lights go off.

(d) Perform central instrument warning system adjustment and test (Ref. 34-16-00).

(e) Perform AFCS WARNING indicator operational test (Ref. 22-10-06).

(f) Perform AFCS MODES annunciator indicator operational test (Ref. 22-10-05).

(g) Perform electronic clock system adjustment and test (Ref. 31-21-00).

(h) Perform central air data computer BITE test (Ref. 34-14-00).

(i) Perform radio altimeter system BITE test (Ref. 34-32-00).

(j) Perform marker beacon system adjustment and test (Ref. 34-35-00).

(k) Perform instrument source select panel adjustment and test (Ref. 34-00-01).

(l) Perform magnetic heading reference system adjustment and test (Ref. 34-22-00).

(m) Perform VOR system BITE test (Ref. 34-55-00).

(n) Perform ADF system BITE test (Ref. 34-57-00).

(o) Perform DME BITE test (Ref. 34-51-00).

(p) Perform ILS adjustment and test (Ref. 34-33-00).

R R (q) Perform FD basic mode fault isolation (Ref. 22-10-31).

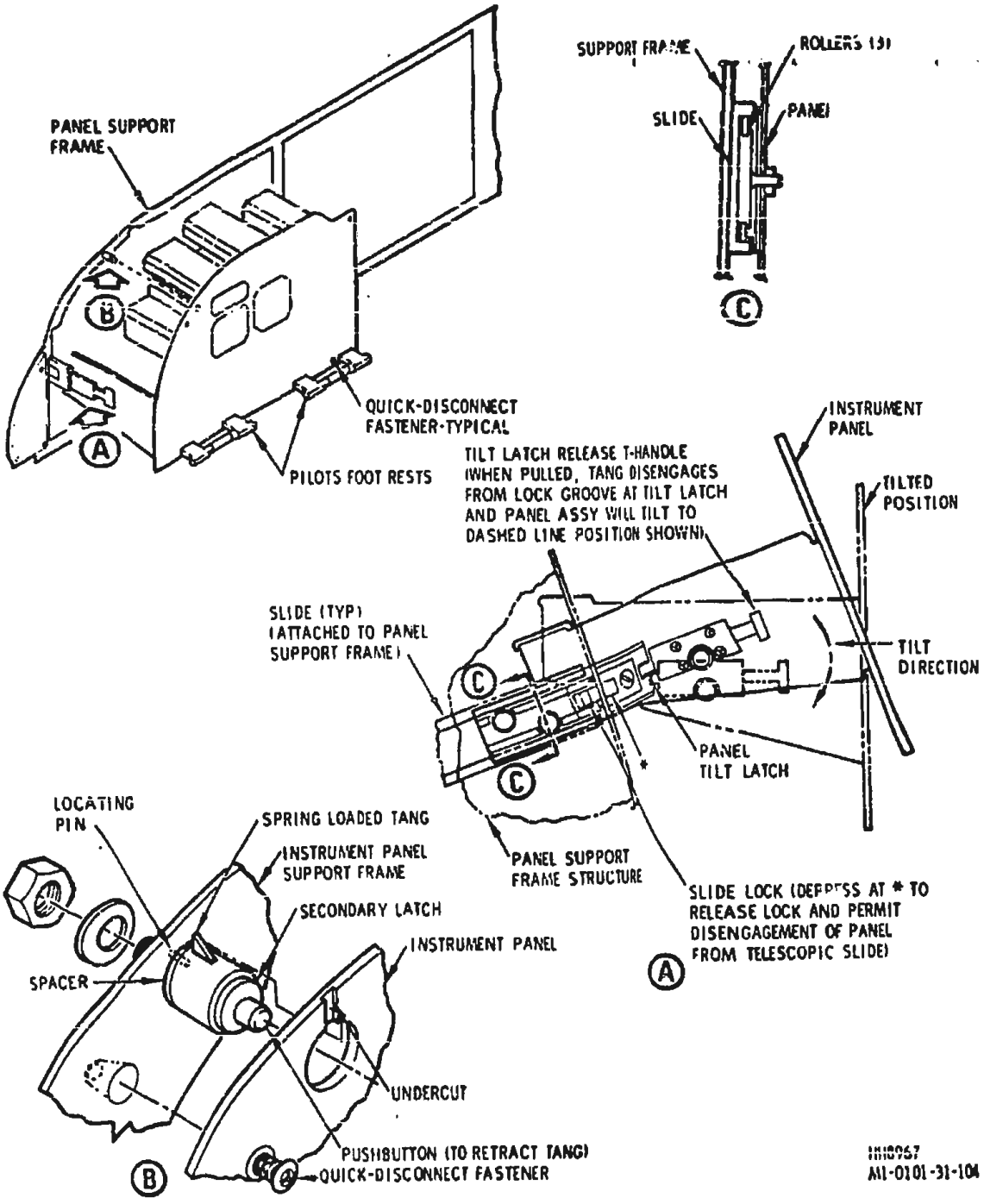
(r) Perform speed control system fault isolation (Ref. 22-31-00).

(s) Perform attitude reference system adjustment and test (Ref. 34-21-00).

NOTE: Radar portions of test may be omitted.

(t) Perform FD approach mode fault isolation (Ref. 22-12-21).

(t) On aircraft with SB34-178, perform windshear warning and guidance adjustment and test (Ref. 34-19-00).



Captains Instrument Panel - Removal and Installation
Figure 401

PILOTS CENTER INSTRUMENT PANEL - REMOVAL AND INSTALLATION

1. Equipment and Materials

Protective caps

Test thermometer

2. Referenced Procedures

24-00-00	Electrical Power - Maintenance Practices
27-00-01	Surface Position Indicator - Adjustment and Test
27-52-02	Flap Position Indicator - Removal and Installation
29-11-00	Hydraulic Power System - Maintenance Practices
32-31-14	Landing Gear Control Switch - Removal and Installation
34-13-00	Pitot-Static System - Leak Check
34-23-00	Standby Horizon Indicator - Adjustment and Test

3. Removal/Installation

A. Removal

(1) On pilots overhead CB panel CB1, zone 210, open and tag the following circuit breakers:

NOTE: If aircraft electrical power is turned off, there is no need for opening circuit breakers specified in Step 3A(1). However, if electrical power is required elsewhere during this procedure, ensure these circuit breakers are opened and tagged.

R ENGINE - TACH N3 - ENG 1 (E10),

R ENGINE - TACH N3 - ENG - 2 (E11),

R ENGINE - TACH N3 - ENG - 3 (E12),

R NO. 1 INSTRUMENT - STBY HRZN - IND (F6),

R NO. 1 INSTRUMENT - STBY HRZN - LT (F7),

ENGINE - TGT - ENG - 1 (F10),

ENGINE - TGT - ENG - 2 (F11),

ENGINE - TGT - ENG - 3 (F12),

26 VAC NAV EXCITATION - SURF - POSN IND (J23),

MISC - AURAL WARNING - ANN - RESET (L9),

LANDING GEAR - DOOR - POSN -IND (L13),

5 VAC INSTRUMENT LIGHTING - CTR - L (L22),

5 VAC INSTRUMENT LIGHTING - CTR - R (L23).

On FE/SO overhead CB panel CB2, zone 215, open and tag the following circuit breakers:

R GEAR - TAIL SKID - CONT (F12),

R GEAR - TRUCK - LEVEL (F16),

R GEAR - GEAR CONT - NO. 1 (F17),

R GEAR - GEAR CONT - NO. 2 (F18),

R GEAR - BRAKE - ANTI - SKID (F22),

R BRAKE - PARKING - BRAKE - NO. 1 (G18),

R BRAKE - PRESS - IND (G21),

R BRAKE - PARKING - BRAKE - NO. 2 (G22).

On FE/SO overhead CB panel CB3, zone 215, open and tag the following circuit breakers:

R INTERIOR LIGHTS - CTR INSTR - & GLARE - SHLD
R (J13),

R POSN IND - TE - FLAP (K16),

R POSN IND - LE - SLAT (K17),

R LE SLAT - EXTEND LT (K18),

R ENG NO. 1 - EPR IND (L5),

R ENG NO. 2 - EPR IND (L11),

R ENG NO. 3 - EPR IND (L17),

ENG NO. 1 - REV IND (N4),

ENG NO. 2 - REV IND (N10),

ENG NO. 3 - REV IND (N16),

ENG NO. 1 - TACH - N1 (P2),

ENG NO. 1 - FUEL - FLOW (P5),

ENG NO. 2 - TACH - N1 (P8),

ENG NO. 2 - FUEL - FLOW (P11),

ENG NO. 3 - TACH - N1 (P14),

ENG NO. 3 - FUEL - FLOW (P11),

INSTR & CONTROLS-ALL ENGINES - TGT - WARN (R11),

INSTR & CONTROL-ALL ENGINES - TAT/EPR (R12)(On aircraft 025-026, 028-999),

INSTR & CONTROL-ALL ENGINES - TAT (R12)(On aircraft 001-024, 027),

INSTR & CONTROL-ALL ENGINES - ENG - INSTR - RESET (R15).

R FUEL QTY - MONITOR (T16)

(2) Set speedbrake handle to MAX (full aft) position.

NOTE: If aircraft hydraulic system A or B is on, the speedbrake handle will remain in full aft position when placed there.

With no hydraulic power applied to the aircraft, a 35-pound force will be required to pull the speedbrake handle aft, and the handle must be held in aft position or the handle will return to the forward position.

(3) Set power control levers to full aft position.

(4) Release pilots center instrument panel, zone 210, quick-disconnect fasteners (Ref. Fig. 401).

(5) Depress secondary latch button and pull center instrument panel from support frame until slide assembly stops engage.

(6) Disconnect electrical harnesses from instrument and instrument panel receptacles.

(7) Disconnect pneumatic lines from instruments. Cap lines and instrument fittings.

(8) Release slide assembly stops and withdraw instrument panel clear of slides. Remove panel from flight station.

(9) Install protective caps on exposed electrical connectors.

B. Installation

(1) Verify that circuit breakers opened in Step 3A(1) are open and tagged.

(2) Set speed brake handle to MAX (full aft) position.

NOTE: If aircraft hydraulic system A or B is on, the speed brake handle will remain in full aft position when placed there.

With no hydraulic power applied to the aircraft, a 35-pound force will be required to pull the speedbrake handle aft, and the handle must be held in aft position or the handle will return to the forward position.

(3) Set power control levers to full aft position.

(4) Engage slides and move instrument panel forward into support frame, then back out until slide assembly stops engage (Ref. Fig. 401).

(5) Remove protective caps and connect electrical harnesses to panel and instrument receptacles.

(6) Remove protective caps and connect pneumatic lines to applicable instruments.

(7) Depress slide assembly stop locks and push panel until secondary latch engages and locks panel in support frame.

(8) Engage panel quick-disconnect fasteners.

(9) Remove tags and close circuit breakers opened in Step 3A(1).

NOTE: Perform the following tests to verify proper operation of center instrument panel indicators, switches, and lights.

(10) Turn on electrical power (Ref. 24-00-00).

(11) Verify FE/SO ECS MONITOR panel AVIONIC AIR - FWD and MID LO FLO lights are out.

(12) Check center instrument panel lights and switches as follows:

(a) Depress RESET switch located adjacent to caution and warning (C & W) panel and verify that all C & W panel lights which are on will go off.

(b) On LIGHTS panel located on pilots overhead panel, depress TEST switch to ON and verify that all C & W panel lights and all advisory lights on center instrument panel come on (along with warning, caution, and advisory lights on other panels in pilots station).

(c) Depress (release) light TEST switch to off and verify that all C & W panel lights, except ones on prior to reset in Step (a), and all advisory lights go off.

(13) Perform pitot-static leak check on secondary pitot-static system (Ref. 34-13-00) to verify standby barometric altitude indicator and standby airspeed indicator operations.

(14) Perform standby horizon indicator adjustment/test (Ref. 34-23-00).

(15) Perform landing gear control switch operational test provided in removal/installation procedure (Ref. 32-31-14).

(16) Perform flap position indicator operational test provided in removal/installation procedure (Ref. 27-52-02).

(17) Check TAT/RATED EPR indicator as follows:

(a) Place test thermometer next to total air temperature probe No. 2, FS139, right side. Shield sensor and thermometer from direct sunlight.

(b) On AIR DATA SENSOR HEAT panel located on pilots overhead panel, release TEMP PROBES switchlight. Verify two OFF lights are on.

NOTE: Ensure that probe heaters have been off for at least 15 minutes before proceeding with test.

(c) Allow temperature to stabilize.

(d) Verify that indicator reads thermometer indication ±3 degrees C.

(e) Remove thermometer from TAT probe No. 2.

(f) On RATED EPR MODE control panel located onFE/SO lower panel, zone 215, depress each of the mode switchlights in turn and verify that applicable mode is indicated in MODE window of TAT/RATED EPR indicator.

(18) Check BRAKE PRESS indicator as follows:

WARNING: VERIFY THE FOLLOWING BEFORE PRESSURIZING ANY HYDRAULIC SYSTEM:

LANDING GEAR DOWNLOCK SAFETY PINS AND DOOR LOCK SAFETY DEVICES ARE INSTALLED.

TRAVEL AREAS OF ALL FLIGHT CONTROL SURFACES AND MAIN GEAR DOORS ARE CLEAR OF ALL PERSONNEL.

THE AFFECTED HYDRAULIC SYSTEMS CAN ACCEPT HYDRAULIC PRESSURE.

(a) Turn on hydraulic systems B and C (Ref. 29-11-00).

(b) Verify that OFF flag on indicator is out of view.

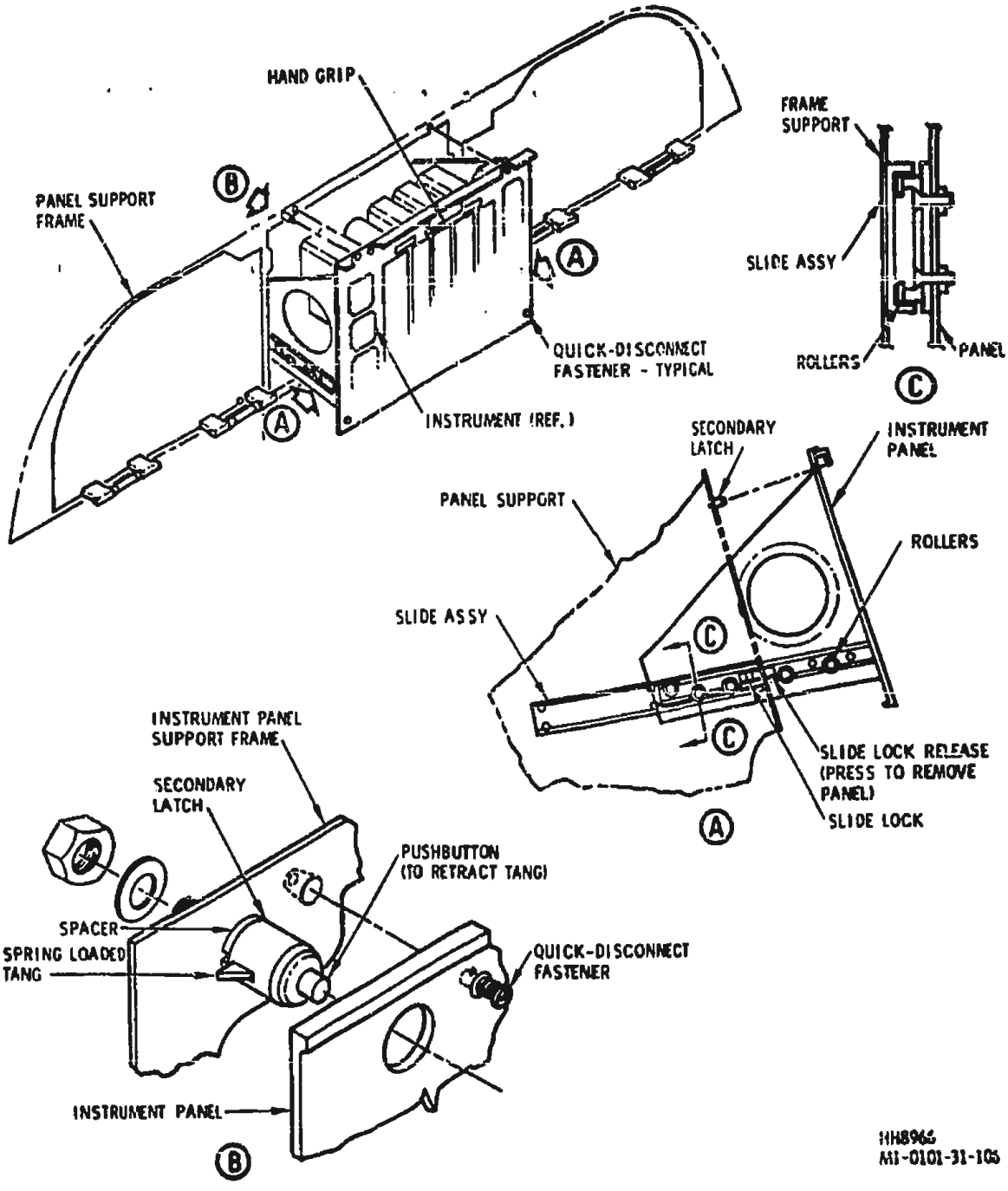
(c) Verify that B and C pressure readings on indicator are same as readings on FE/SO hydraulic system B and C pressure indicators.

(d) Turn off hydraulic system (Ref. 29-11-00).

(19) Perform surface position indicator adjustment/test (Ref. 27-00-01).

(20) Make note to verify satisfactory operation of EPR, N1, TGT, N3, and FF indicators during next engine motoring or runup procedure.

(21) Turn off electrical power (Ref. 24-00-00).



Pilots Center Instrument Panel - Removal and Installation
Figure 401

FIRST OFFICERS INSTRUMENT PANEL - REMOVAL AND INSTALLATION

1. Equipment and Materials

Protective caps

2. Referenced Procedures

	22-10-05	AFCS MODES Annunciator Indicator - Adjustment and Test
	22-10-06	AFCS WARNING Indicator - Adjustment and Test
	22-12-19	FD Localizer Mode - Fault Isolation
	22-12-21	Approach Mode - Fault Isolation
	22-31-00	Speed Control System - Adjustment and Test
	24-00-00	Electrical Power - Maintenance Practices
	29-11-00	Hydraulic Power System - Maintenance Practices
	31-21-00	Electronic Clock System - Adjustment and Test
	34-00-01	Instrument Source Select Panel - Adjustment and Test
	34-14-00	Central Air Data Computer - Adjustment and Test
	34-15-00	Air Temperature System - Adjustment and Test
	34-16-00	Central Instrument Warning System - Adjustment and Test
R R	34-19-00	Windshear Warning and Guidance System - Adjustment and Test (on aircraft with SB34-178)
	34-22-00	Magnetic Heading Reference System - Adjustment and Test
	34-32-00	Radio Altimeter System - Adjustment and Test
	34-33-00	Instrument Landing System - Adjustment and Test
	34-35-00	Marker Beacon System - Adjustment and Test
	34-43-00	Inertial Navigation System - Adjustment and Test

34-51-00 DME - Adjustment and Test

34-55-00 VOR System - Adjustment and Test

34-57-00 ADF System - Adjustment and Test

34-61-00 Flight Management System - Adjustment and Test

3. Removal/Installation

A. Removal

(1) On Pilots overhead CB panel CB1, zone 210, open and tag the following circuit breakers:

AVIONICS FLIGHT CONTROL SYSTEM

AUTO THROT SERVO (A1)

NO. 1 SYSTEMS - SPEED CONT (A2)

NO. 1 SYSTEMS - PITCH & ROLL (A6)

On aircraft with SB34-178,
WDSHR AC (A19)

NO. 2 SYSTEMS - SPEED CONT (A20)

NO. 2 SYSTEMS - PITCH & ROLL (A24)

On aircraft with SB34-178,
WDSHR DC (A27)

AFCS MODE IND (B19)

ELECT - CLOCK - SYSTEM (B18)

NO. 1 NAVIGATION - DME (D5)

NO. 2 NAVIGATION

RADIO ALTM (D22)

DME (D23)

ADF (D24)

INSTR CMPRN MON (D26)

NO. 1 NAV & INSTR

ALT SOURCE SEL - F/O INSTR (E2)

F/O RDDMI (E3)

NO. 2 NAV & INSTR

VERT SP IND (E21)

INS 3/GYRO 3 (E24)

NO. 2 INSTRUMENTS

F/O - IAS/MACH (F19)

F/O - ADI (F20)

F/O - HSI (F21)

F/O - ALTM (F22)

SAT/TAS (F27)

NO. 1 NAVIGATION

VHF DC - VOR RCVR (G1)

ILS (G4)

CMPS COUPLER (G7)

AIR DATA CMPTR (G8)

NO. 2 NAVIGATION

VHF DC - VOR RCVR (G19)

ILS (G22)

INS/VERT GYRO (G24)

CMPS CPLR (G26)

AIR DATA CMPTR (G27)

26 VAC NAV EXCITATION

RDDMI 2 (J20)

VOR 2 (J22)

VOR 1 (K21)

RDDMI NO. 1 (K25)

5 VAC INSTRUMENT LIGHTING

F/O - L (L24)

F/O - R (L25)

On FE/SO overhead CB panel CB2, zone 215, open and tag the following circuit breakers:

FLIGHT STATION LIGHTS

F/O INSTR (E5)

AFCS WARNING - F/O (K19)

On FE/SO aft CB panel CB3, zone 215, open and tag the following circuit breakers:

IND LT

PFCS ADS/DH (G8)

FLT CONT ALT ALERT (G9)

(2) Turn on electrical power (Ref. 24-00-00).

WARNING: VERIFY THE FOLLOWING BEFORE PRESSURIZING ANY HYDRAULIC SYSTEM:

LANDING GEAR DOWNLOCK SAFETY PINS AND DOOR LOCK SAFETY DEVICES ARE INSTALLED.

TRAVEL AREAS OF ALL FLIGHT CONTROL SURFACES AND MAIN GEAR DOORS ARE CLEAR OF ALL PERSONNEL.

THE AFFECTED HYDRAULIC SYSTEMS CAN ACCEPT HYDRAULIC PRESSURE.

(3) Pressurize a hydraulic power system (Ref. 29-11-00).

(4) Set speed brake handle to MAX (full aft) position.

(5) Ensure that power control levers are full aft.

(6) Release first officers instrument panel quick-disconnect fasteners (Ref. Fig. 401).

(7) Depress secondary latch button and pull instrument panel from support frame until slide assembly stops engage.

(8) Disconnect electrical harnesses from intrument panel connectors and stow clear of panel and instruments.

(9) While second man holds control column in full aft position, release panel tilt latches and tilt panel down.

(10) Release slide assembly stops and withdraw panel clear of slides. Move panel inboard over center console, zone 210, and remove from flight station.

(11) Allow control column to move forward to its neutral position.

(12) Depressurize hydraulic system (Ref. 29-11-00) and turn off electrical power (Ref. 24-00-00).

(13) Install protective caps on exposed electrical connectors.

B. Installation

(1) Verify that circuit breakers opened in Step 3A(1) are open and tagged.

(2) Turn on electrical power (Ref. 24-00-00).

WARNING: VERIFY THE FOLLOWING BEFORE PRESSURIZING ANY HYDRAULIC SYSTEM:

LANDING GEAR DOWNLOCK SAFETY PINS AND DOOR LOCK SAFETY DEVICES ARE INSTALLED.

TRAVEL AREAS OF ALL FLIGHT CONTROL SURFACES AND MAIN GEAR DOORS ARE CLEAR OF ALL PERSONNEL.

THE AFFECTED HYDRAULIC SYSTEMS CAN ACCEPT HYDRAULIC PRESSURE.

(3) Pressurize a hydraulic system (Ref. 29-11-00).

(4) Set speed brake handle to MAX (full aft) position.

(5) Set power control levers to full aft position.

(6) Release first officers instrument panel tilt latches and tilt panel down (Ref. Fig. 401).

(7) While second man holds control column full aft, move instrument panel from a position just over the center console to a position that aligns the slide assembly components.

(8) Engage slides and move panel forward into support frame, then back out until slide assembly stops engage.

(9) Move panel up to engage tilt latches.

(10) Allow control column to move forward to its neutral position.

(11) Depressurize the hydraulic system (Ref. 29-11-00) and turn off electrical power (Ref. 24-00-00).

(12) Remove protective caps from electrical connectors and connect electrical harnesses to panel and instrument receptacles.

(13) Depress slide assembly stop locks and push panel forward until secondary latch engages and holds panel in the support frame.

(14) Engage panel quick-disconnect fasteners.

(15) Remove tags and close circuit breakers opened in Step 3A(1).

(16) Check operation of First Officers instrument panel indicators as follows:

(a) Turn on electrical power (Ref. 24-00-00)

(b) On LIGHTS panel located on pilots overhead panel, depress TEST switch to ON. On First Officers instrument panel, verify that the following lights are on:

Radio altimeter DH light

APPROACH, ALTITUDE, and DEVIATION lights

Instrument source select ALTN lights

R On aircraft with SB34-178,
R red WINDSHR lights

R On aircraft with SB34-178,
R amber WINDSHR lights

(c) On LIGHTS panel, depress (release) TEST switch. All lights go off.

(d) Perform central instrument warning system adjustment and test (Ref. 34-16-00).

(e) Perform AFCS WARNING indicator operational test (Ref. 22-10-06).

(f) Perform AFCS MODES annunciator indicator operational test (Ref. 22-10-05).

(g) Perform electronic clock system adjustment and test (Ref. 31-21-00).

(h) Perform central air data computer BITE test (Ref. 34-14-00).

(i) Perform radio altimeter system BITE test (Ref. 34-32-00).

(j) Perform marker beacon system adjustment and test (Ref. 34-35-00).

(k) Perform instrument source select panel adjustment and test (Ref. 34-00-01).

(l) Perform magnetic heading reference system adjustment and test (Ref. 34-22-00).

(m) Perform VOR system BITE test (Ref. 34-55-00).

(n) Perform ADF system BITE test (Ref. 34-57-00).

(o) Perform DME BITE test (Ref. 34-51-00).

(p) Perform ILS adjustment and test (Ref. 34-33-00).

R (q) Perform FD basic mode fault isolation (Ref.
R 22-10-31).

(r) Perform speed control system fault isolation (Ref. 22-31-00).

(s) Perform attitude reference system adjustment and test (Ref. 34-21-00).

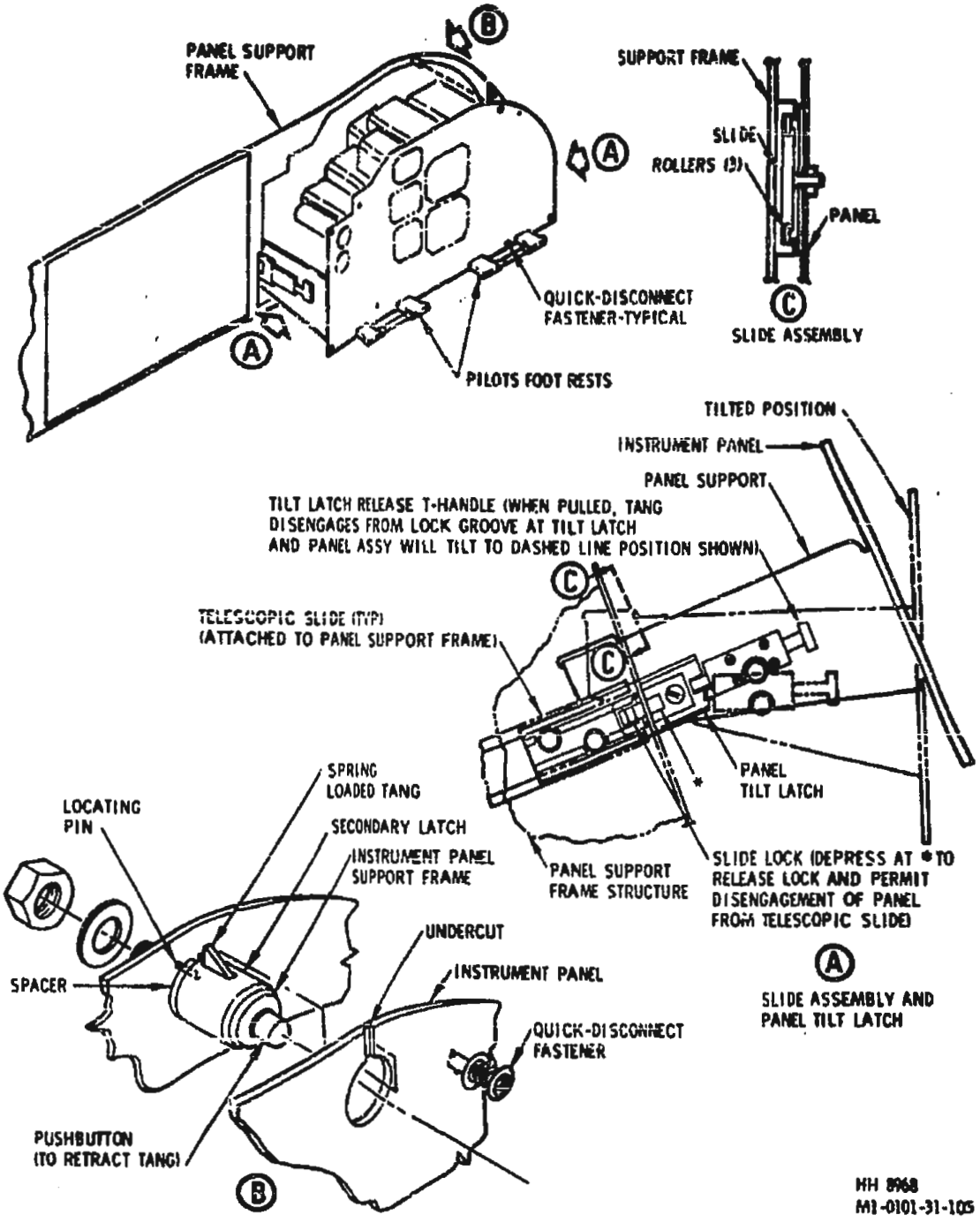
NOTE: Radar portions of test may be omitted.

(t) Perform FD approach mode fault isolation (Ref. 22-12-21).

(u) Perform inertial navigation system adjustment and test (Ref. 34-43-00). applicable portion of flight management system adjustment and test (Ref. 34-61-00).

(v) Perform air temperature system adjustment and test, SAT test (Ref. 34-15-00).

R (w) On aircraft with SB34-178,
R perform Windshear Warning and Guidance Adjustment
R and Test (Ref. 34-19-00).



First Officers Instrument Panel - Removal and Installation
Figure 401

PILOTS GLARESHIELD PANEL - REMOVAL AND INSTALLATION

1. Referenced Procedure

   31-11-01 Captains Instrument Panel - Removal and Installation

   31-11-02 Pilots Center Instrument Panel - Removal and Installation

R 31-11-03 F/O Instrument Panel - Removal and Installation

2. Removal/Installation

   A. Removal

      (1) On pilots overhead circuit breaker panel CB1, zone 210, open and tag circuit breakers:

R INSTR - PNL - FLOOD (F9),

R EYE LCT - & APRCH - CHART (L19).

On FE/SO overhead circuit breaker panel CB2, zone 215, open and tag circuit breakers:

R F/O - INSTR (E5),

R SIDE - CONSOLE - FLOOD (E8),

R GLARE - SHLD (M6).

On FE/SO aft circuit breaker panel CB3, zone 215, open and tag circuit breakers:

R CREW - UTILITY - LT (J3),

R CAPT - & F/O - FLOOD (J5),

R CAPT - INSTR (J12),

R CTR INSTR - & GLARE - SHLD (J13).

      (2) Remove Captains instrument panel (Ref. 31-11-01).

      (3) Remove pilots center instrument panel (Ref. 31-11-02).

      (4) Remove First Officers instrument panel (Ref. 31-11-03).

(5) Loosen setscrews in Captain and F/O WINDSHIELD WASHER control knobs and remove knobs (Ref. Fig. 401).

(6) Remove right and left forward upper side trim panels.

(7) Disconnect floodlight control and floodlight assembly connectors (3300-J5, 3300-J6, 3313-J2, 3313-J3) outboard of windshield washer control valves.

R

(8) Disconnect windshield defogging hoses from glareshield outlets.

(9) Remove bolts from glareshield.

(10) Remove glareshield.

B. Installation

(1) Verify that circuit breakers opened in Step 2A(1) are opened and tagged.

(2) Place glareshield in position and install bolts.

(3) Connect windshield defogging hoses.

(4) Connect floodlight control and floodlight assembly connectors disconnected in Step 2A(7).

(5) Remove tags and close circuit breakers opened in Step 2A(1).

(6) Verify operation of Captains and First Officers glareshield lighting.

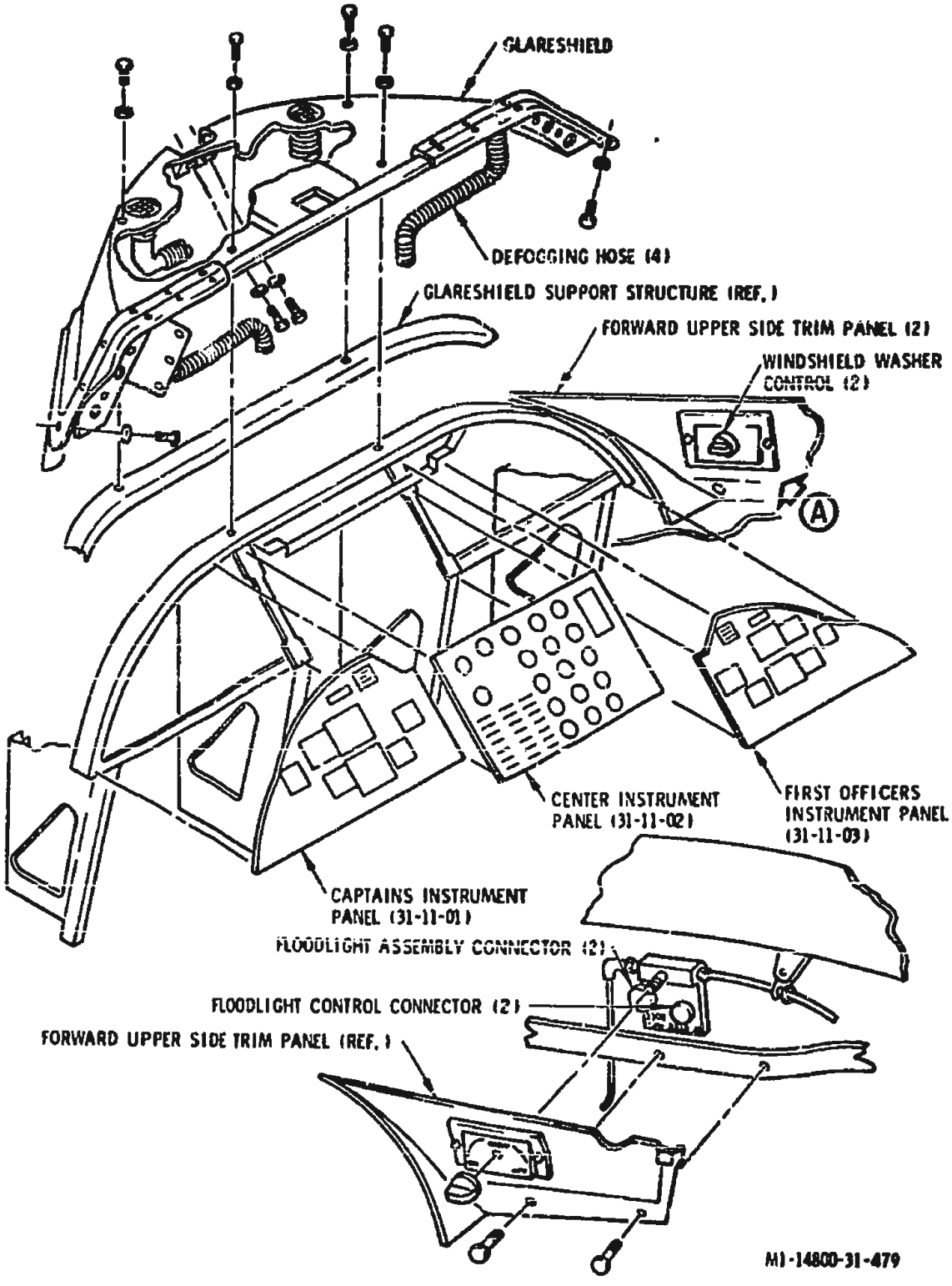
(7) Install right and left forward upper side trim panels.

(8) Install WINDSHIELD WASHER control knobs and tighten setscrews.

(9) Install First Officers instrument panel.

(10) Install pilots center instrument panel.

(11) Install Captains instrument panel.



R R Glareshield - Removal and Installation
Figure 401

R EFFECTIVITY: ALL
R R
001B

FLIGHT ENGINEER/SECOND OFFICERS STATION - DESCRIPTION AND OPERATION

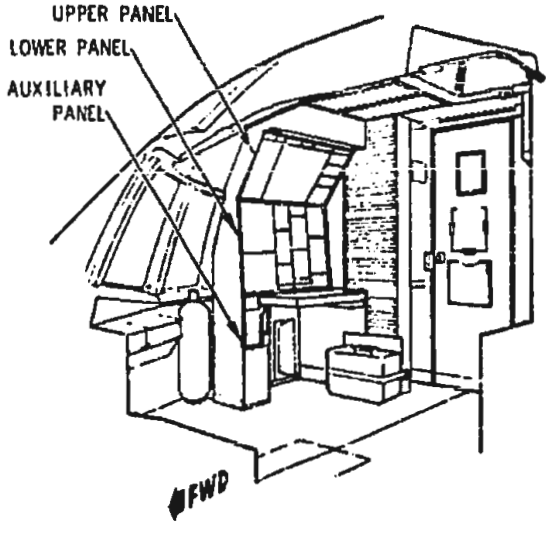
1. General

The Flight Engineer/Second Officers station (Ref. Fig. 1) contains the following instrument and control panels:

Flight Engineer/Second Officers upper panel (Ref. Fig. 2)

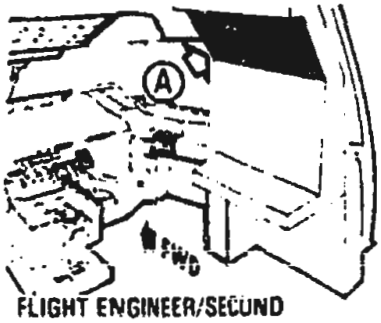
Flight Engineer/Second Officers lower panel (Ref. Fig. 3)

Flight Engineer/Second Officers auxiliary panel (Ref. Fig. 4)

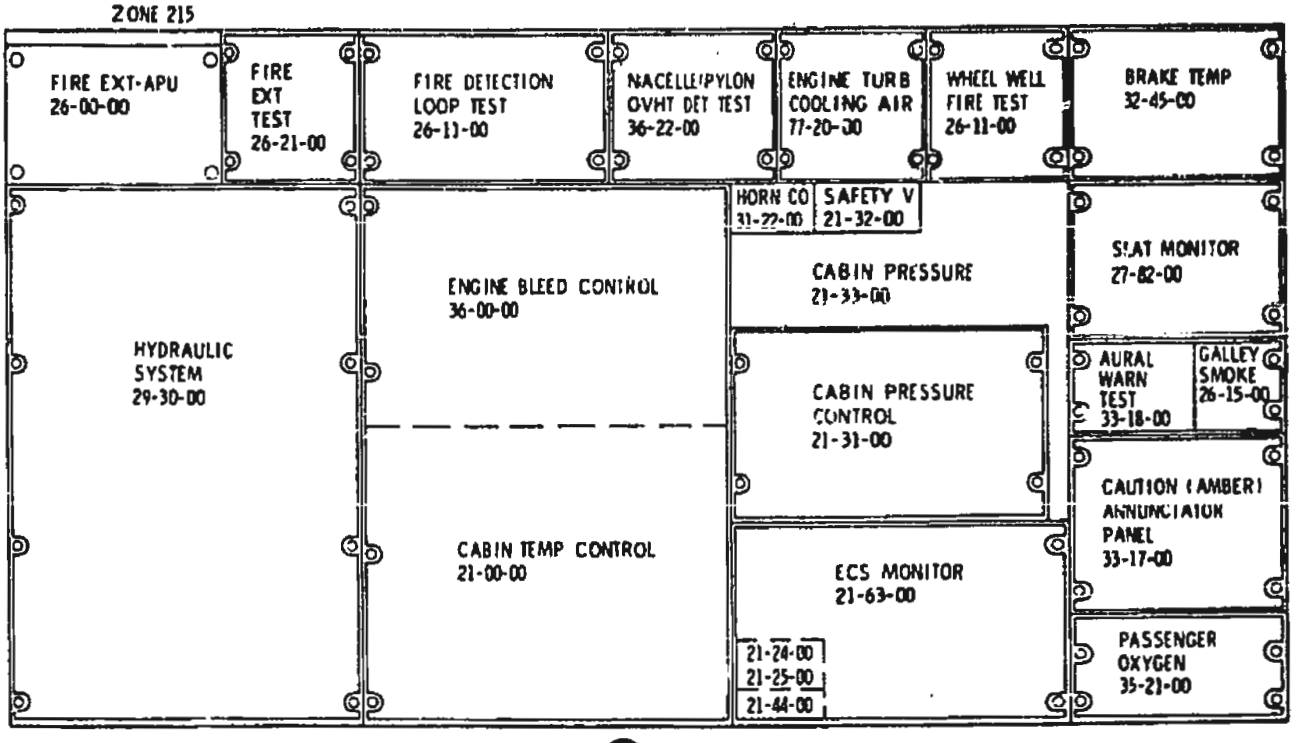


HH 6158
M1-0103-31-012

R Flight Engineer/Second Officers Station Panel Locations
R Figure 1

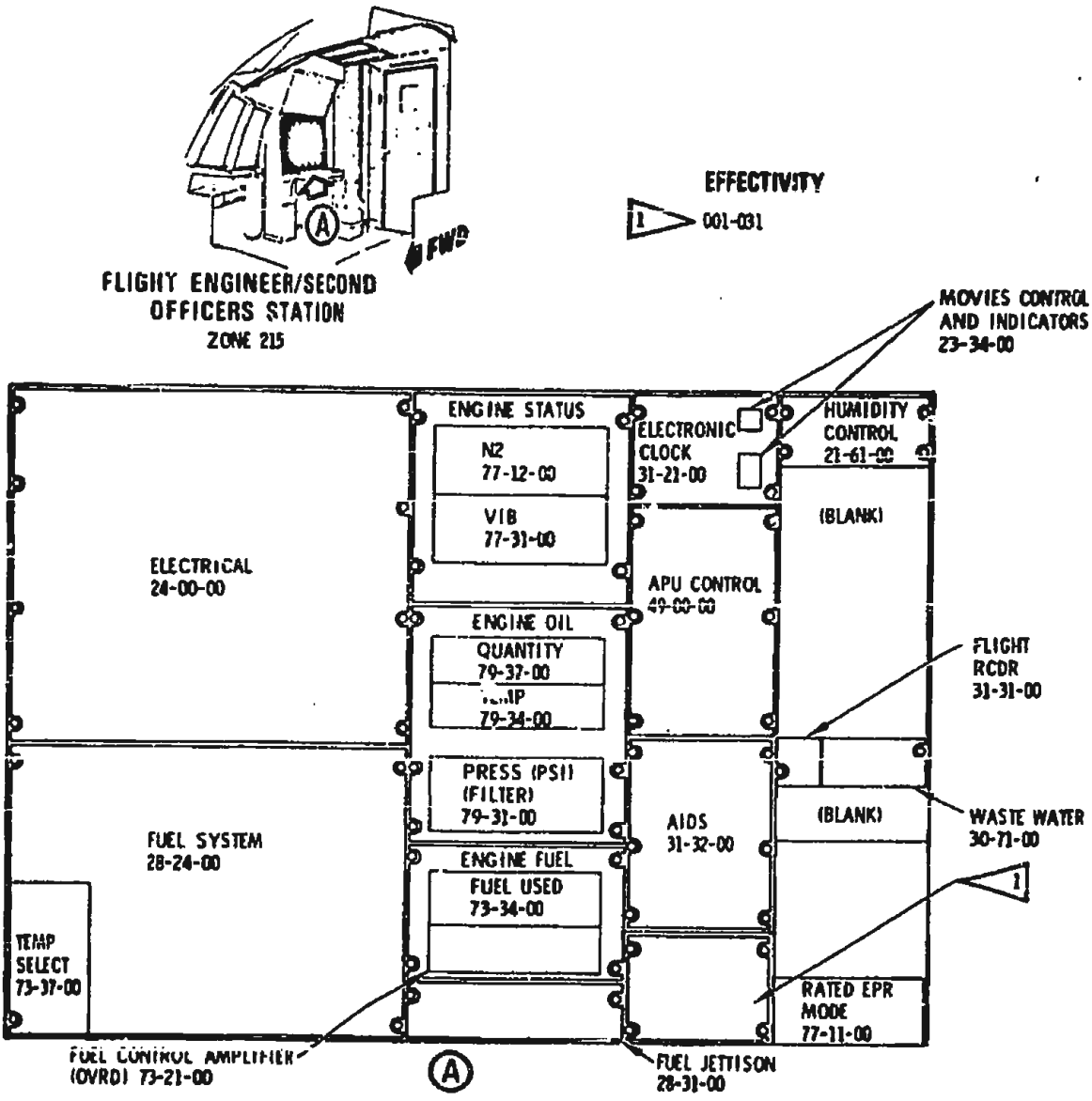


FLIGHT ENGINEER/SECOND OFFICERS STATION
ZONE 215



M1-0004-31-013

Flight Engineer/Second Officers Upper Panel
Figure 2



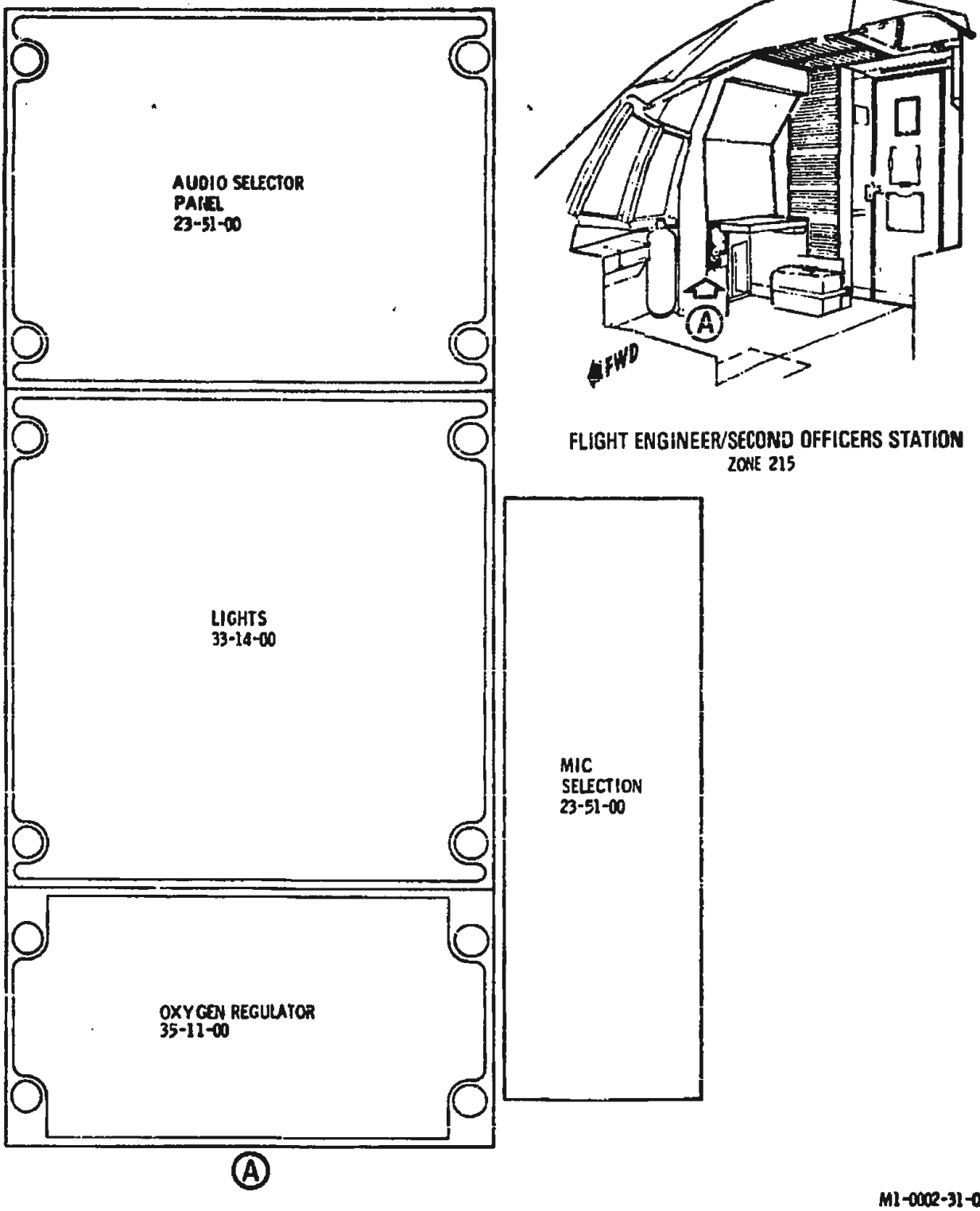
M1-0006-31-014

CR
CR

Flight Engineer/Second Officers Lower Panel
Figure 3

EFFECTIVITY: ALL

001B



FLIGHT ENGINEER/SECOND OFFICERS STATION
ZONE 215

M1-0002-31-015

R Flight Engineer/Second Officers Auxiliary Panel
R Figure 4

FUELING/DEFUELING STATIONS - DESCRIPTION AND OPERATION

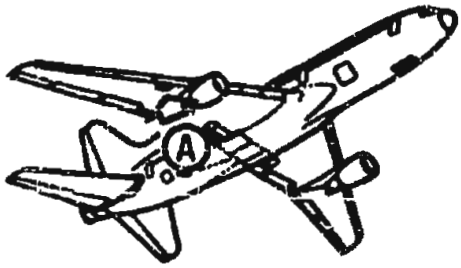
1. General

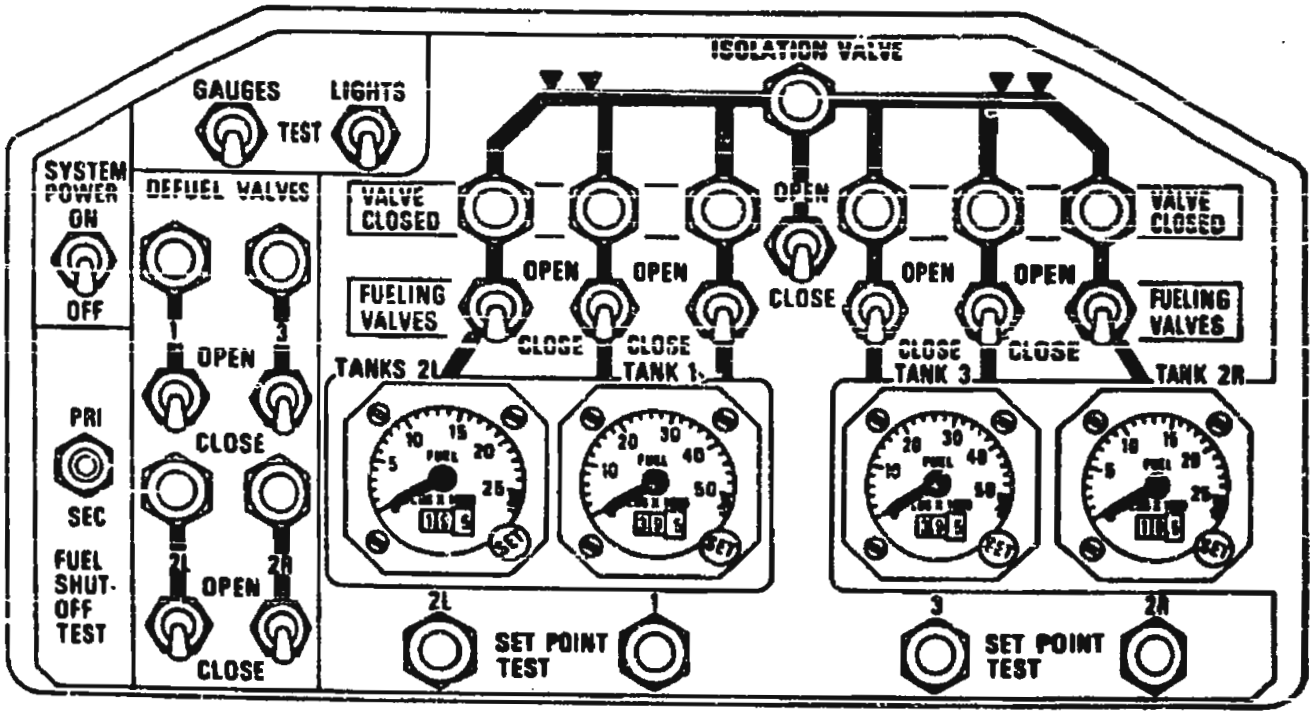
Fueling/defueling stations (Ref. 28-00-00) are located in the wing leading edge sections outboard of the engine nacelles, under access door 5218B (left wing, zone 521) and 6218B (right wing, zone 621). Each station is equipped with a fueling/defueling panel. Interphone jacks and refuel/defuel hose grounding jacks are located behind access doors 5210B (left wing) and 6210B (right wing) (Ref. 23-43-00).

R 2. Fueling/Defueling Panel

A. Description

R The right wing fueling/defueling panel supports the
R refuel/defueling controls and fuel quantity indicators used
R in fueling and defueling the aircraft (Ref. Fig. 1).

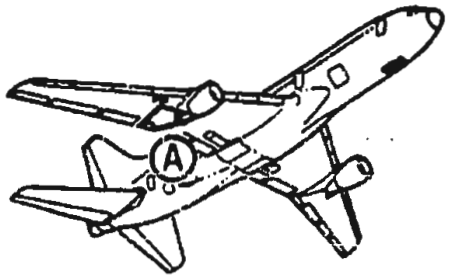


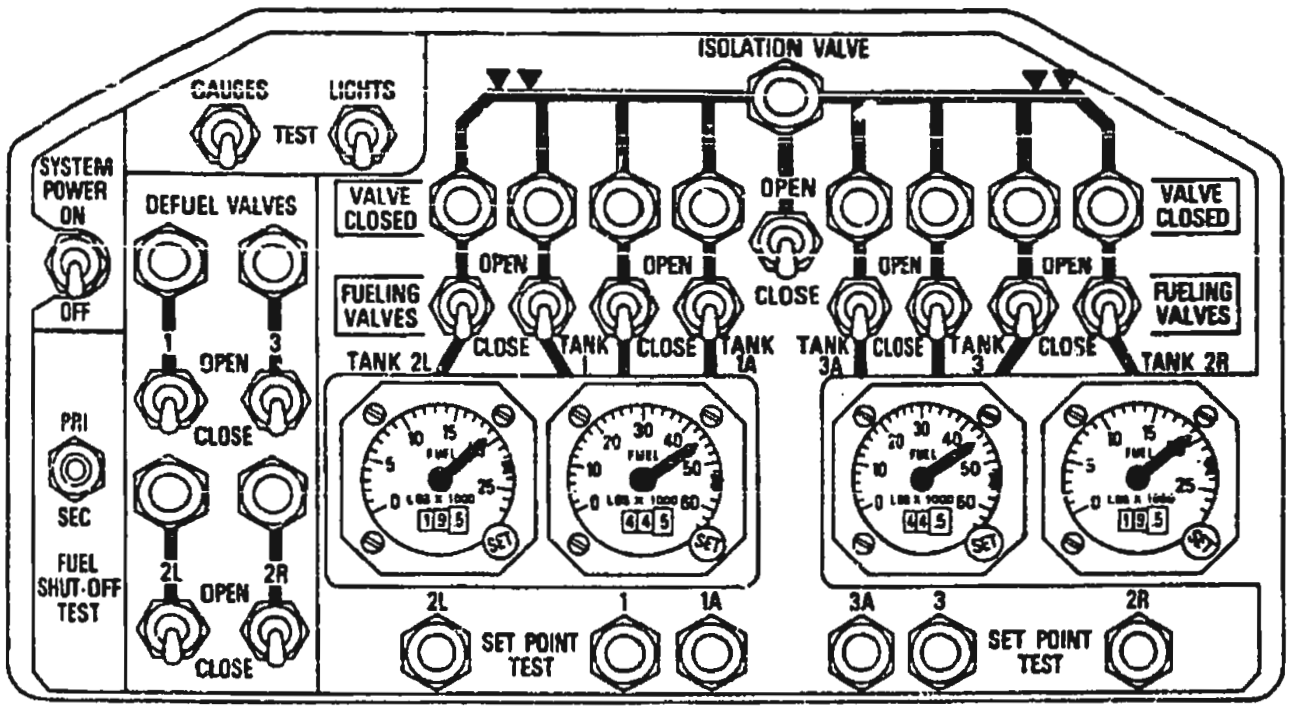


Ⓐ

M1-0000-28-1186

R Fuel Quantity Indicators, Fueling/Defueling Panel
R Figure 1





Fuel Quantity Indicators, Fueling/Defueling Panel
Figure 1

HYDRAULIC SERVICE CENTER COMPARTMENT - DESCRIPTION AND OPERATION

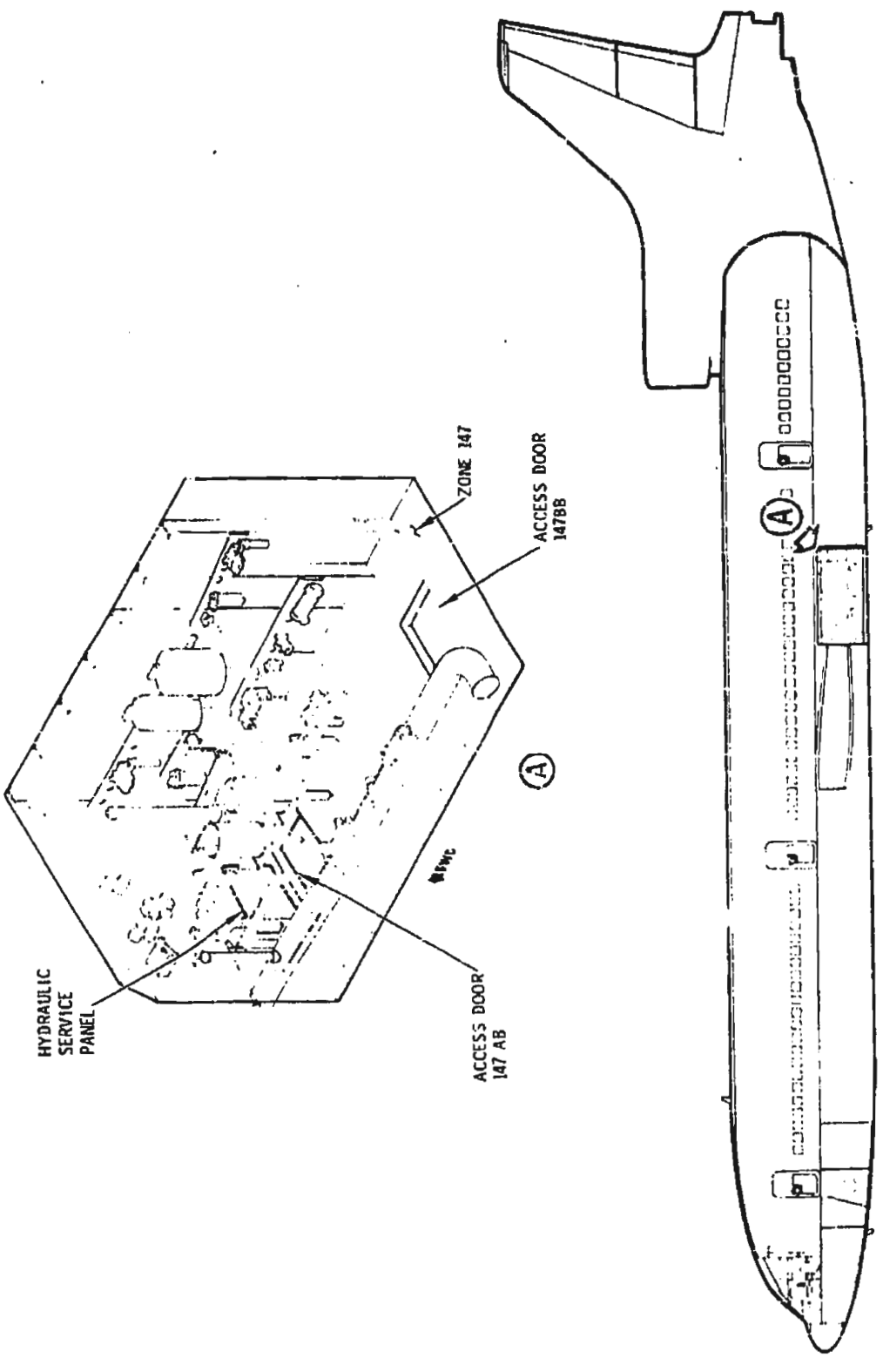
1. General

The hydraulic service center compartment (Ref. Fig. 1), zone 147, contains the hydraulic service panel. Access to the compartment is gained by opening access doors 147AB or 147BB, located between the landing gear wheel well doors.

2. Hydraulic Service Panel

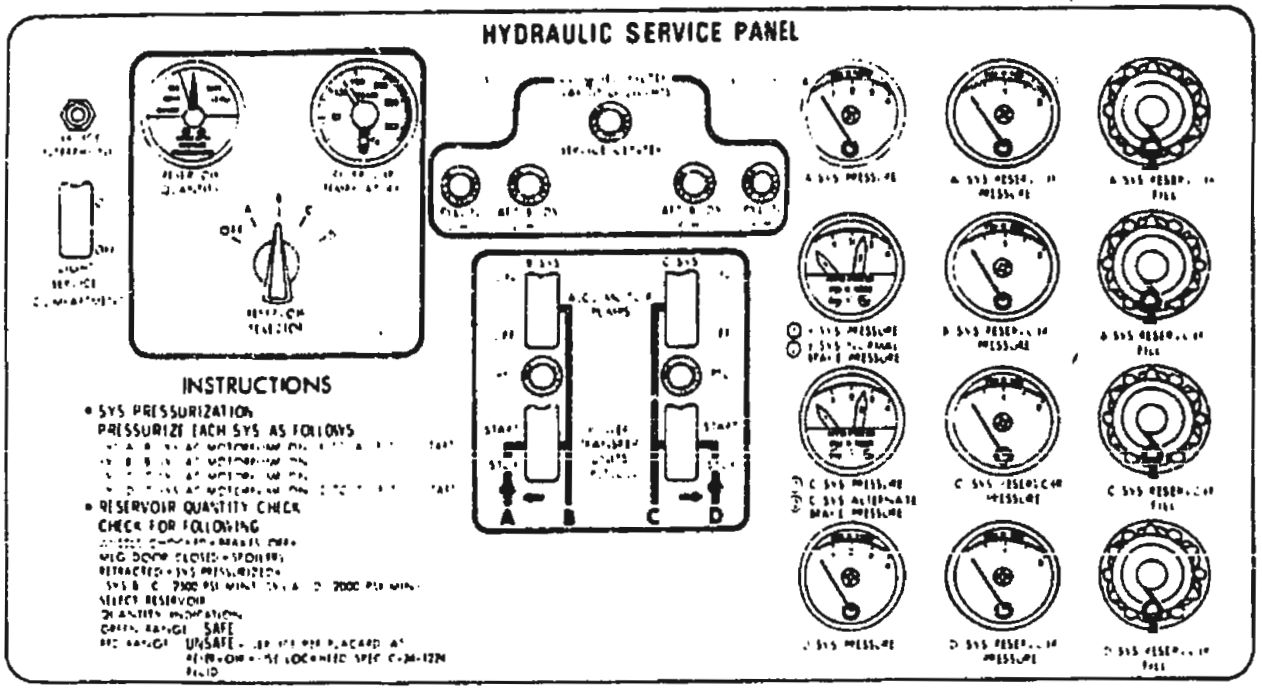
A. Description

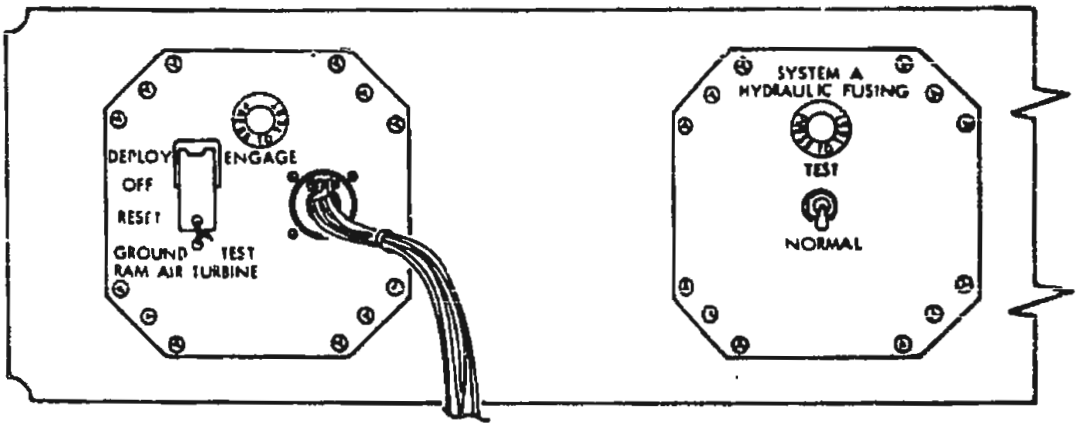
The hydraulic service panel (Ref. Fig. 2) contains controls and indicators used to check and service the hydraulic system. The panel also contains quick-disconnect fittings
R used to service the system. Refer to Chapter 29-11-00 for
R detailed panel discussion.



HI 4363
M1-0103-31-018

Hydraulic Service Center Compartment
Figure 1

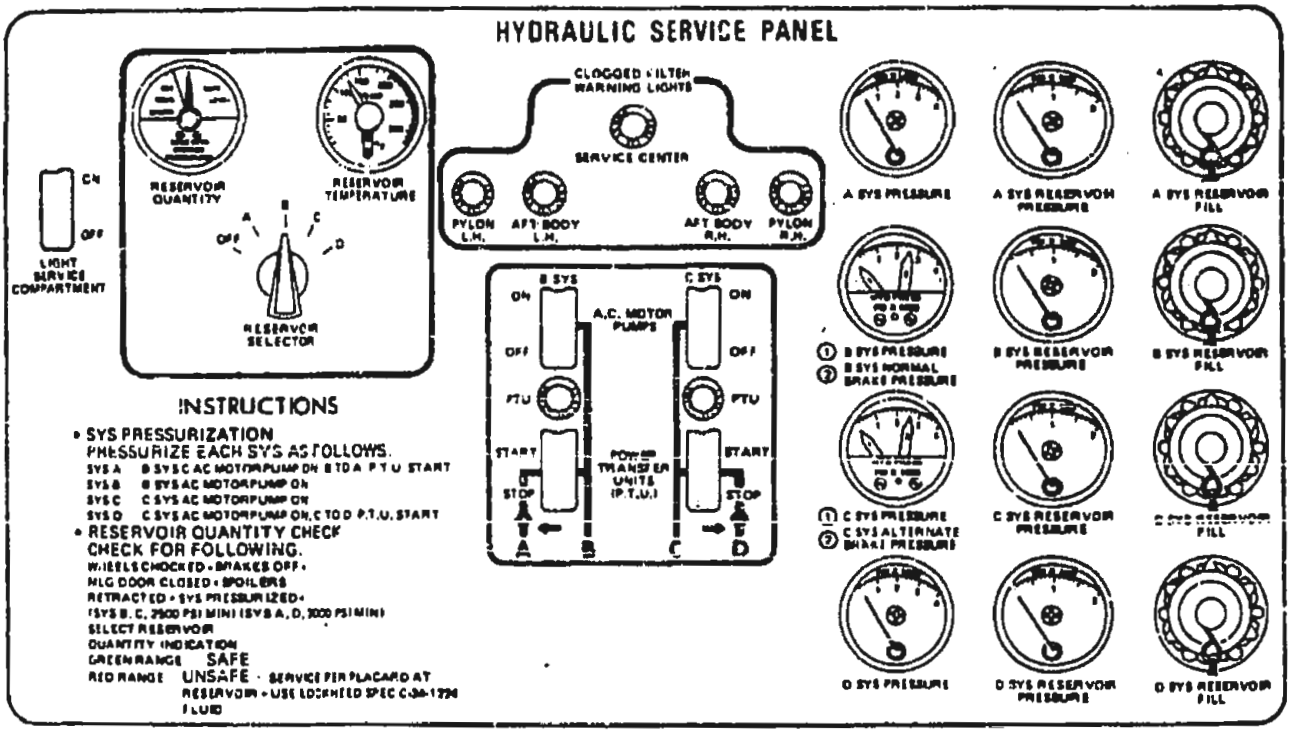


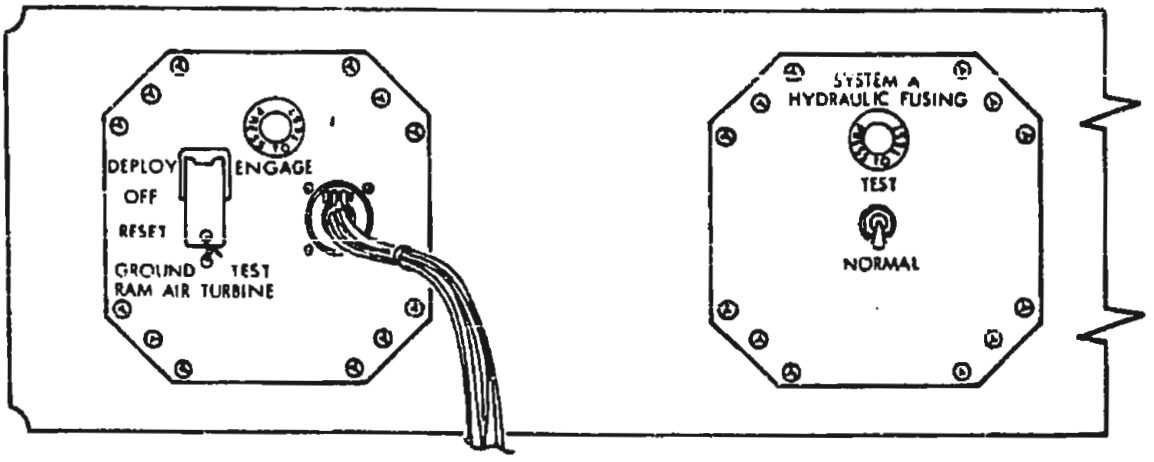


M1-0006-29-025

R
R Hydraulic Service Panel
Figure 2

R EFFECTIVITY: 001-024, 027
R
001B





M1-38201-29-342

R Hydraulic Service Panel
R Figure 2

R EFFECTIVITY: 025-026, 028-999

001B

OBSERVERS STATIONS - DESCRIPTION

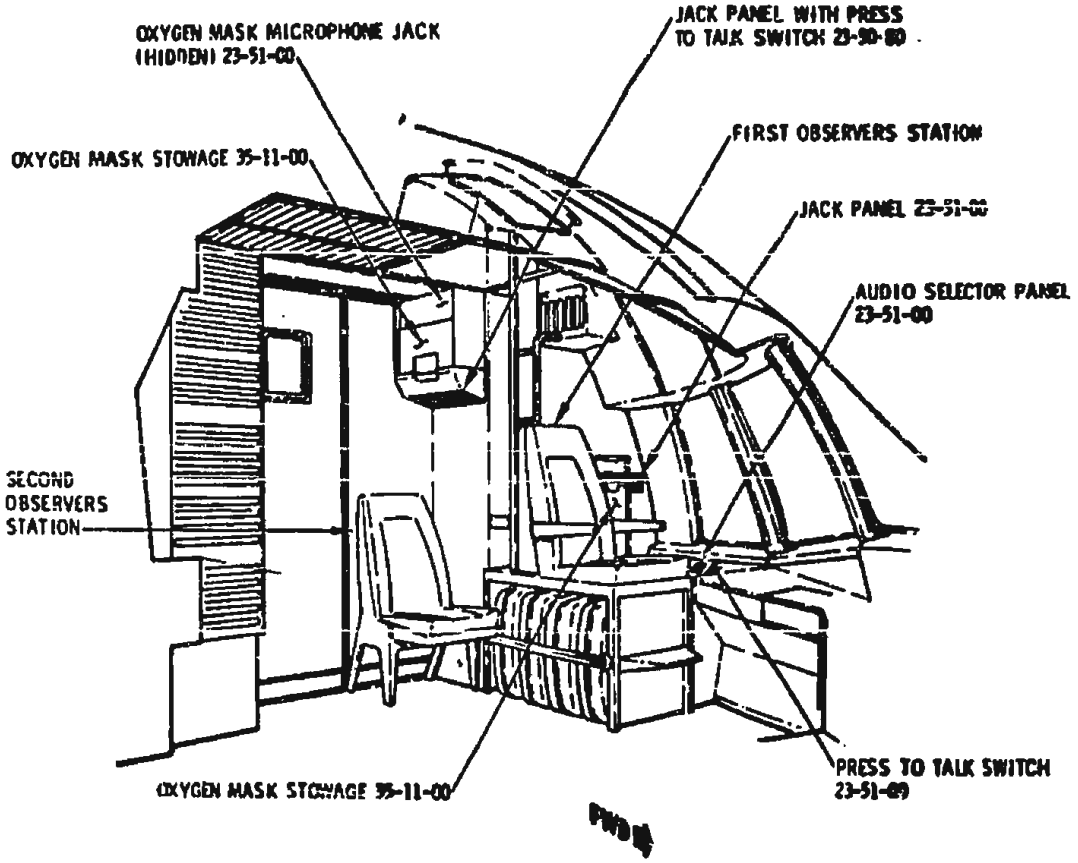
1. General

The Observers stations are located in the flight station immediately aft of the Captains seat, zone 211. The stations include two seats, miscellaneous equipment (Ref. 25-12-00), and the Observers panels.

2. Observers Panels

A. Description

The Observers panels (Ref. Fig. 1) include oxygen and communication equipment for the Observers. Figure 1 shows the locations of the panels and references the chapters where each is described in detail.


OXYGEN MASK MICROPHONE JACK (HIDDEN) 23-51-00
JACK PANEL WITH PRESS TO TALK SWITCH 23-90-00
FIRST OBSERVERS STATION
OXYGEN MASK STOWAGE 35-11-00
JACK PANEL 23-51-00
AUDIO SELECTOR PANEL 23-51-00
SECOND OBSERVERS STATION
OXYGEN MASK STOWAGE 35-11-00
PRESS TO TALK SWITCH 23-51-09

M1-0103-31-021

R
R

Observers Panels
Figure 1

EFFECTIVITY: ALL

001B

INDEPENDENT INSTRUMENTS - DESCRIPTION AND OPERATION

1. Electronic Clock System (Captain and First Officer)

A. General

The electronic clock system, except for interface with the aircraft electrical system, is independent of any other system. The electric clock system provides the primary time reference for flight operations.

ELECTRONIC CLOCK SYSTEM - DESCRIPTION AND OPERATION

1. General

The electronic clock system (Ref. Fig. 1) consists of three electronic clock indicators interconnected with a master time unit and two remote sweep (CLOCK SWP) function switches. A 24-hour digital clock indicator is installed in the Captains instrument panel, zone 211, and in the First Officers instrument panel, zone 212. A 24-hour analog clock indicator is installed in the Flight Engineer/Second Officers lower panel, zone 215. The master time unit is installed behind the Flight
R Engineer/Second Officers upper panel. Two remote sweep (CLOCK SWP) switches are installed in the glareshield panel, zone 210.

2. Operation

The electronic clock system (Ref. Fig. 2) receives 28V dc from the aircraft battery bus through the ELECT CLOCK SYSTEM (B18) circuit breaker on the pilots overhead circuit breaker panel CB1, zone 210. The 28V dc is applied to a voltage regulator in the master time unit and is also distributed through the time unit to a voltage regulator in each of the three electronic clock indicators. Each voltage regulator converts the 28V dc to internal operating voltages.

The master time unit provides timing voltages (generated by a two-phase inverter-driver) to slave the electronic clock indicators. The timing voltages are controlled by a crystal oscillator. The crystal-oscillator output frequency is divided through binary frequency dividers and is applied to a two-phase inverter-driver. The inverter-driver generates three separate two-phase, 60-Hz outputs, each of which drives an electronic inverter in each clock indicator; in this manner, each clock indicator is electronically isolated from the others.

The 24-hour analog clock indicator inverter output drives the clock indicator time-of-day motor and the sweep-second motor. The time-of-day motor operates continuously as long as power is applied. The sweep-second motor is energized by a sweep (SWP) function switch on the clock indicator case.

The 24-hour digital clock indicator inverter output drives the clock indicator GMT-ET (Greenwich Mean Time-elapsed time) motor and the events motor. The GMT-ET motor operates continuously as long as power is applied; the motor is manually switched through a gear train, by means of an ET switch on the clock indicator case, to start or stop the ELAPSED TIME digital display or to

set the ELAPSED TIME digital display to zero. The events motor is energized by an EVENT switch, on the clock indicator case, to start or stop or to reset the sweep-second hand and sweep-minute index. The events motor for the Captains or the First Officers clock indicator can also be energized by the Captains or the First Officers remote CLOCK SWP switch, respectively, on the glareshield panel.

Clock indicator illumination lamps are powered by 5V ac as follows:

Through the 5 VAC INSTRUMENT LIGHTING - CAPT - L (L20) circuit breaker, on the pilots overhead circuit breaker panel CB1, zone 210, for the Captains clock indicator

Through the 5 VAC INSTRUMENT LIGHTING - F/O - L (L24) circuit breaker on the pilots overhead circuit breaker panel CB1, zone 210, for the First Officers clock indicator

Through the 5 VAC FLT ENGR INSTRUMENT PANEL - LOWER - RIGHT (BB14) circuit breaker on the Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215, for the Flight Engineer/Second Officers clock indicator

3. Analog Electronic Clock Indicator

A. Description

The Flight Engineer/Second Officers electronic clock indicator (Ref. Fig. 2) is a 24-hour analog display clock indicator housed in a 3-ATI case. The face of the indicator is scaled into 24 and 60 steps. The positions of the hour hand and the sweep-minute index are read on the 24-step scale. The positions of the sweep-minute index and the sweep-second hand are read on the 60-step scale. The clock indicator case includes a SET knob and a SWP function switch. The clock indicator movement consists of an electronic inverter and voltage regulator, a time-of-day motor, a sweep motor, sweep logic circuits, and associated gear trains. A single, quick-disconnect, electrical connector at the rear of the clock indicator provides system interface.

B. Operation

The analog electronic clock indicator receives 28V dc primary power and 1-volt (maximum), two-phase, 60-Hz timing voltages from the master time unit. The 28V dc is applied to a voltage regulator which generates a 15V dc internal operating voltage. The 1-volt, two-phase, 60-Hz output from

the master time unit is applied to an electronic inverter which drives the time-of-day and sweep motors.

(1) Clock Indicator Presentation

The hour and minute hands are driven by the time-of-day motor through a gear train. The motor drives the hands continuously through each 24-hour period. The hour hand makes a complete revolution in 24 hours, and the minute hand makes one revolution in 60 minutes. The resettable sweep-second hand and sweep-minute index are connected to the sweep motor through a separate gear train. The sweep-second hand makes one complete in 1 minute; the sweep-minute index makes one revolution in 24 minutes. The sweep-second motor is operated by sweep logic circuits through the SWP function switch.

(2) Sweep (SWP) Function Switch

The pushbutton SWP switch permits three modes of operation: start, stop, and zero.

(a) The first depression of the switch initiates the start mode. The sweep-second hand and the sweep-minute index start simultaneously from the 24-o'clock position and move continuously.

The sweep-second hand and the sweep-minute index start simultaneously from the 24-o'clock position and move continuously.

(b) A second depression of the switch stops the sweep-second hand and the sweep-minute index.

(c) When the spring-loaded switch is turned clockwise, the sweep-second hand and sweep-minute index reset to the 24-hour position. When the switch is released, it returns to its normal position.

The sweep-second hand and sweep-minute index can indicate cumulative time; that is, they can be started and stopped as many times as necessary without being reset. If the sweep-second hand and sweep-minute index are sweeping and the SWP switch is turned clockwise, the sweep-second hand and sweep-minute index will reset and resume sweeping. If the sweep-second hand and sweep-minute index are stopped at the reset position, they will remain stopped until the SWP switch is depressed.

(3) Manual Set (SET) Knob

The hour and minute hands are set manually by the SET knob on the front of the case. The spring-loaded knob, when pulled outward, can be turned clockwise or counterclockwise to set the time.

CHRONO MINUTES are displayed by two decimal 7-segment indicators, and seconds are indicated by a sweep hand.

4. Master Time Unit

A. Description

The master time unit (Ref. Fig. 1) provides three separate 1-volt (maximum), two-phase, 60-Hz timing voltages, each of which drives an electronic inverter in an electronic clock indicator. The time unit is contained in a 3-ATI case. The time unit consists of a voltage regulator and filter, a crystal oscillator, a set of binary frequency dividers, and a two-phase inverter-driver. A single quick-disconnect electrical connector, at the rear of the unit, provides the interface for the electronic clock indicators.

B. Operation

The master time unit operates on 28V dc from the aircraft battery bus. The 28V dc is applied through the ELECT - CLOCK - SYSTEM (B18) circuit breaker to the voltage regulator. (The 28V dc is also distributed through the master time unit to each of the three electronic clock indicators.)The voltage regulator generates 15V dc to operate the crystal oscillator, the binary frequency dividers, and the two-phase inverter-driver. The crystal oscillator output is fed to the binary frequency dividers. The frequency is divided to 240 Hz. The 240-Hz signal is fed to the two-phase inverter-drivers which generate three 1-volt (maximum), two-phase, 60-Hz output voltages. The output voltages trigger each of the electronic clock indicator inverters.

5. Digital Electronic Clock Indicator

A. Description

The Captains and First Officers electronic clock indicators (Ref. Fig. 1) are 24-hour digital display clock indicators, each housed in a 3-ATI case. The face of each indicator is scaled into 12 minutes and into 60 seconds. The face is swept by a sweep-minute index and a sweep-second hand. The face provides two digital displays: a four-digit, 24-hour, GMT (Greenwich Mean Time) display and a four-digit,

100-hour, ELAPSED TIME display. The clock indicator case includes a sweep function (EVENT) switch, a GMT set knob, and an ET (elapsed time) function switch. The clock indicator movement consists of an electronic inverter and voltage regulator, a Greenwich Mean Time and elapsed time (GMT-ET) motor, time-delay circuits, and associated gear trains. A single, quick-disconnect, electrical connector at the rear of the clock indicator provides system interface.

B. Operation

Each digital electronic clock indicator receives 28V dc primary and 1-volt (maximum), two-phase, 60-Hz timing voltages from the master time unit. The 28V dc is applied to the voltage regulator which generates a 15V dc internal operating voltage. The timing-voltage output from the master time unit is applied to the electronic inverter which operates the clock indicator Greenwich Mean Time and elapsed time (GMT-ET) motor and the events motor.

The GMT-ET motor drives the continuous GMT and the resettable ELAPSED TIME displays through a gear train. The GMT display consists of two adjacent continuous tapes, one displaying 00 to 23 hours and the second displaying 00 to 59 minutes. The minutes tape is graduated in 15-second steps. The tapes are driven so that the digits move downward, increasing the displayed reading.

The ELAPSED TIME display consists of a four-digit counter, displaying 00 00 to 99 59 HRS and MIN (hours and minutes). The MIN drum is graduated in 15-second steps. The counter is driven so that the digits move downward (the MIN drum moving continuously), increasing the displayed reading.

The GMT-ET motor is engaged by the ET switch on the clock indicator case. When the ET switch is set to RUN, the ELAPSED TIME HRS and MIN digital counter starts and operates continuously until the switch is set to STOP. When the switch is set to ZERO, the counter resets to 00 hours and 00 minutes. The switch is spring-loaded from the ZERO position to the STOP position.

The GMT set knob on the clock indicator case sets the GMT digital readout. When the knob is pulled out and rotated clockwise, the time readout is increased; when the knob is rotated counterclockwise, the time readout is decreased. The knob must then be pushed.

The events motor drives the sweep-second hand and the minute index (bug) through a gear train. The events motor is energized, through a time-delay circuit, by the

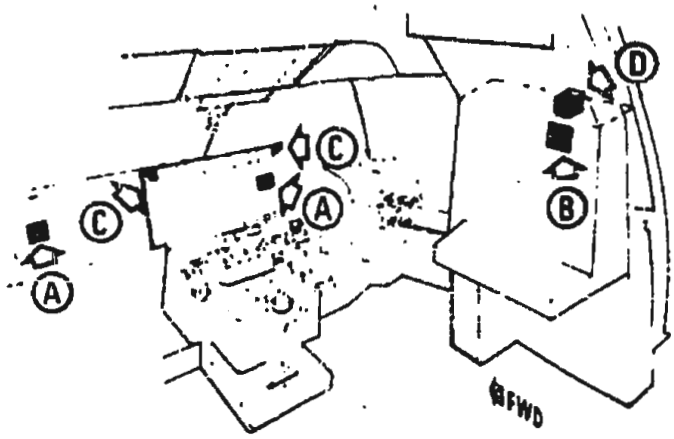
spring-loaded EVENT switch, on the clock indicator face, as follows:

At the first depression of the switch, the sweep-second hand and sweep-minute index start simultaneously from the zero MINUTES position and move continuously. The sweep-second hand makes a complete revolution every minute and the sweep-minute index makes a complete revolution in 12 minutes.

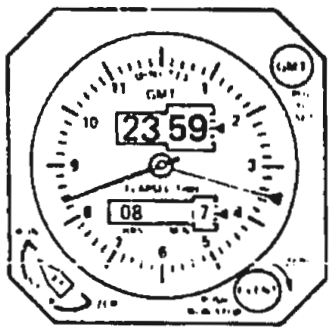
When the EVENT switch is depressed a second time, the sweep-second hand and sweep-minute index stop.

When the spring-loaded switch is turned clockwise, the sweep-second hand and sweep-minute index reset to the 12-o'clock position. When the switch is released, it returns to its normal position.

The sweep-second hand and sweep-minute index can indicate cumulative time; that is, they can be started and stopped as many times as necessary without being reset. If the sweep-second hand and sweep-minute index are sweeping and the EVENT switch is depressed, the hand and index reset and continue sweeping; if the hand and index are stopped and reset, they remain stopped until the EVENT switch is again depressed. Operation of the sweep-second hand and the sweep-minute index of the Captains or First Officers clock indicator may be remotely controlled by the Captains or First Officers CLOCK SWP function switch, respectively, on the glareshield panel.

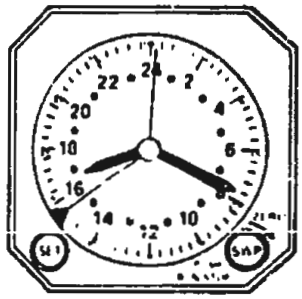


FLIGHT STATION
ZONE 210



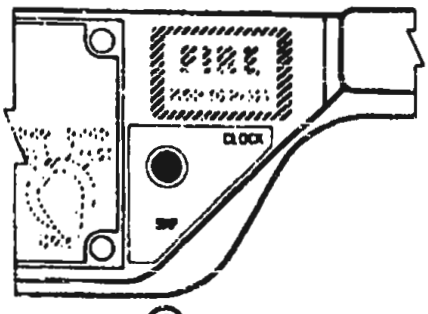
(A)

24 HR DIGITAL ELECTRONIC CLOCK INDICATOR
(TYPICAL CAPTAINS AND FIRST OFFICERS
INSTRUMENT PANEL)



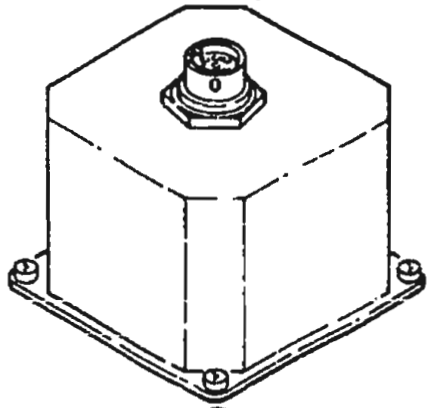
(B)

24 HR ANALOG ELECTRONIC CLOCK INDICATOR
(FLIGHT ENGINEER/SECOND OFFICERS
INSTRUMENT PANEL)



(C)

REMOTE SWEEP SWITCH
(FIRST OFFICERS CLOCK; CAPTAINS OPPOSITE)

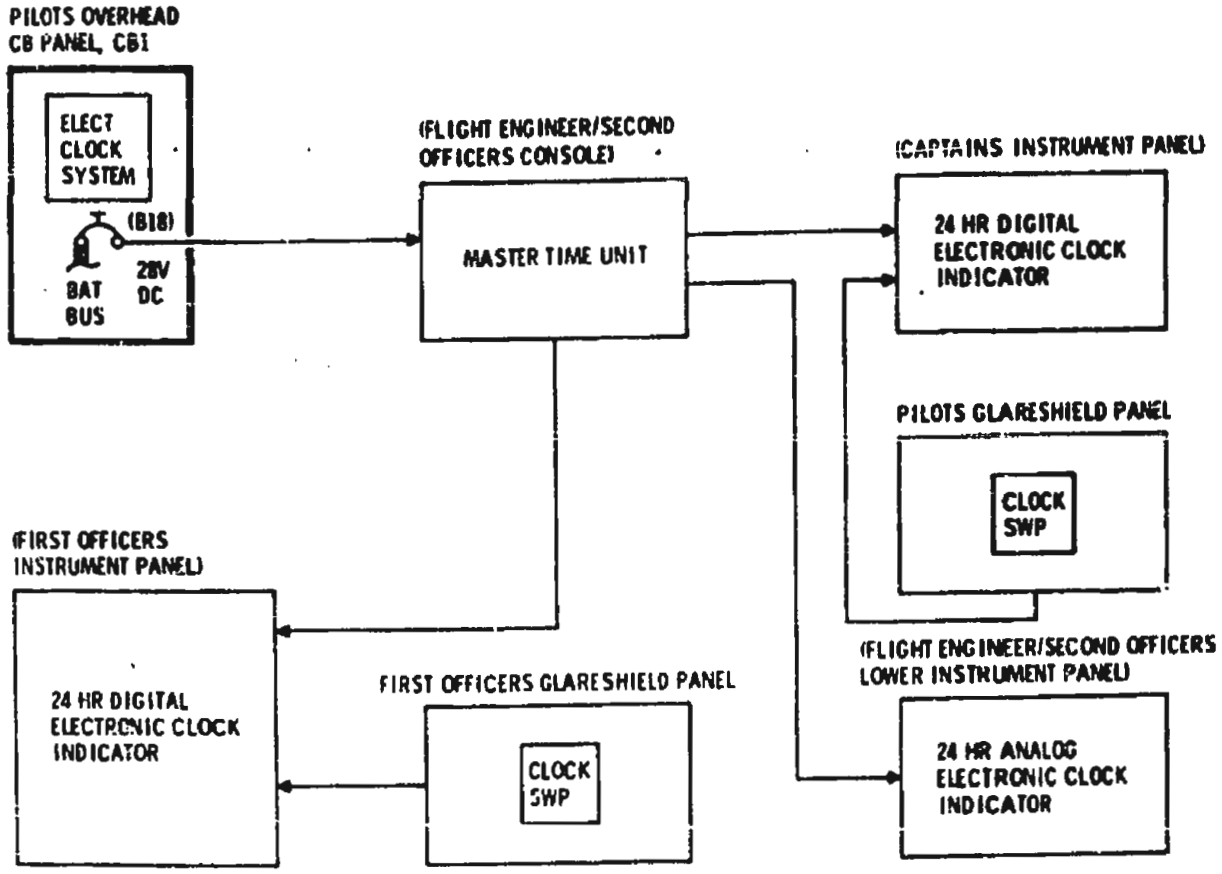


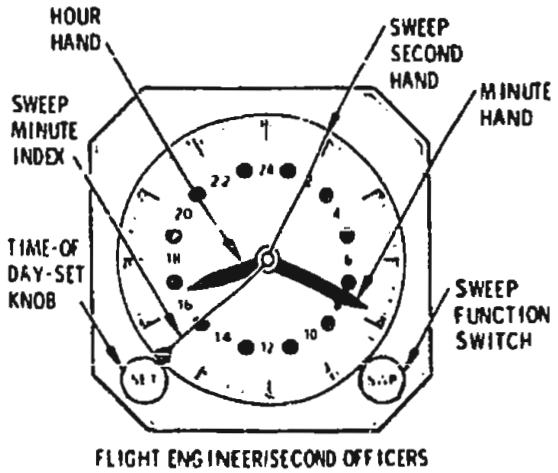
(D)

MASTER TIME UNIT
(BEHIND INSTRUMENT PANEL)

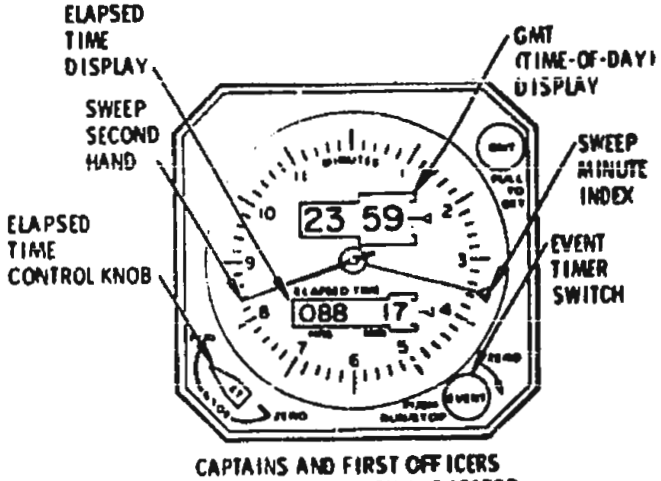
A11-5001-31-082

R Electronic Clock System Component Locations
R Figure 1





FLIGHT ENGINEER/SECOND OFFICERS
24 HR ANALOG CLOCK INDICATOR



CAPTAINS AND FIRST OFFICERS
24 HR DIGITAL CLOCK INDICATOR

MI-0000-31-614

R R Electronic Clock System, Block Diagram
Figure 2

R EFFECTIVITY: ALL

ELECTRONIC CLOCK SYSTEM - FAULT ISOLATION

1. General

The diagrams and schematics in this section can be used for fault isolation any time a fault is reported or suspected. The PREREQUISITES listed at the top of each fault isolation diagram must be satisfied prior to starting fault isolation. Uncommon abbreviations are defined on the using fault code diagram or schematic.

If the flight crew reports a trouble using a fault code number, the code number can be found in the Fault Isolation Reference Table in the Chapter 31 Fault Code Index. The index specifies the exact maintenance manual section, fault isolation diagram, and block number on the diagram where the fault isolation procedure should start. Schematics are included at the end of the section to supplement the fault code diagrams or as an aid in isolating a problem not covered on the diagrams.

Refer to the Maintenance Manual Introduction for a more detailed discussion of the Fault Isolation Reporting Method (FIRM) and use of fault isolation diagrams/schematics.

2. Fault Isolation/Identification

R An indication of a fault in the electronic clock systems will be the failure of one or more units to function properly or respond as expected to the time set and sweep function switches, and (relative to the Captains and First Officers clocks) the elapsed time function switches. Fault analysis is then primarily a task of operating the system and observing the analog or digital time indicators for proper operation, clock response to actuation of time-of-day (SET) and sweep function (SWP) switches, and elapsed time function switches (digital units only). Other than possible repairs to electrical power and signal path interface wiring, on-board repair of faults is limited to replacement of faulty dial face illumination lamps and malfunctioning or physically damaged components (clock indicator, master time unit, or remote sweep switch).

Table 101 lists the fault isolation diagrams and schematics in this section.

Table 101

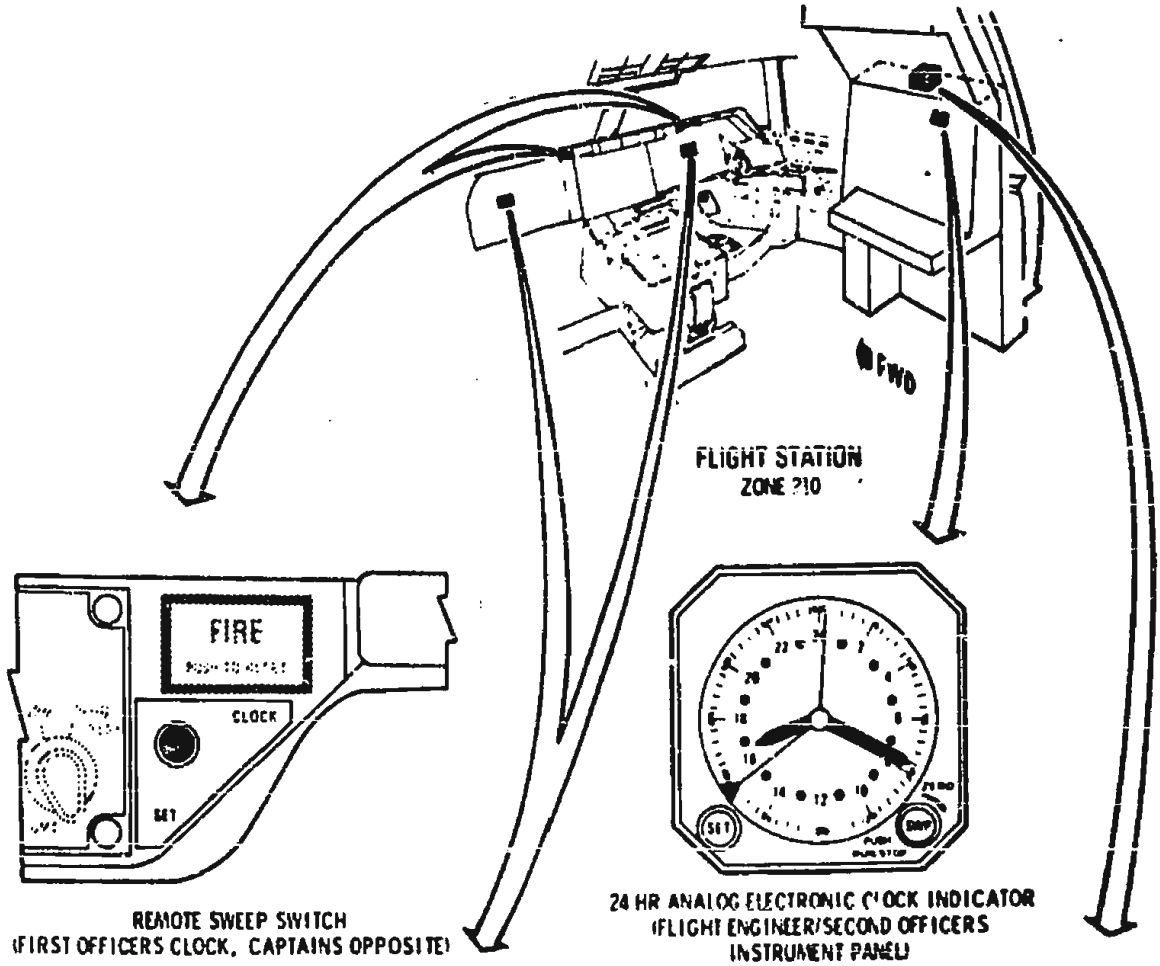
FIGURE	TITLE
101	Component Location Index
102	Component Locator Diagram
SCHEM 1	Electronic Clock System Schematic

COMPONENT	QTY	AREA/ACCESS	REFERENCE
INDICATOR:			
24 HR ANALOG ELECTRONIC CLOCK	1	FLT STA – P12	31-21-01
24 HR DIGITAL ELECTRONIC CLOCK	2	FLT STA – P1, P3	31-21-01
SWITCH – REMOTE SWEEP	2	FLT STA – P20, P21	31-21-04
UNIT – MASTER TIME	1	FLT STA – BEHIND P11	31-21-02

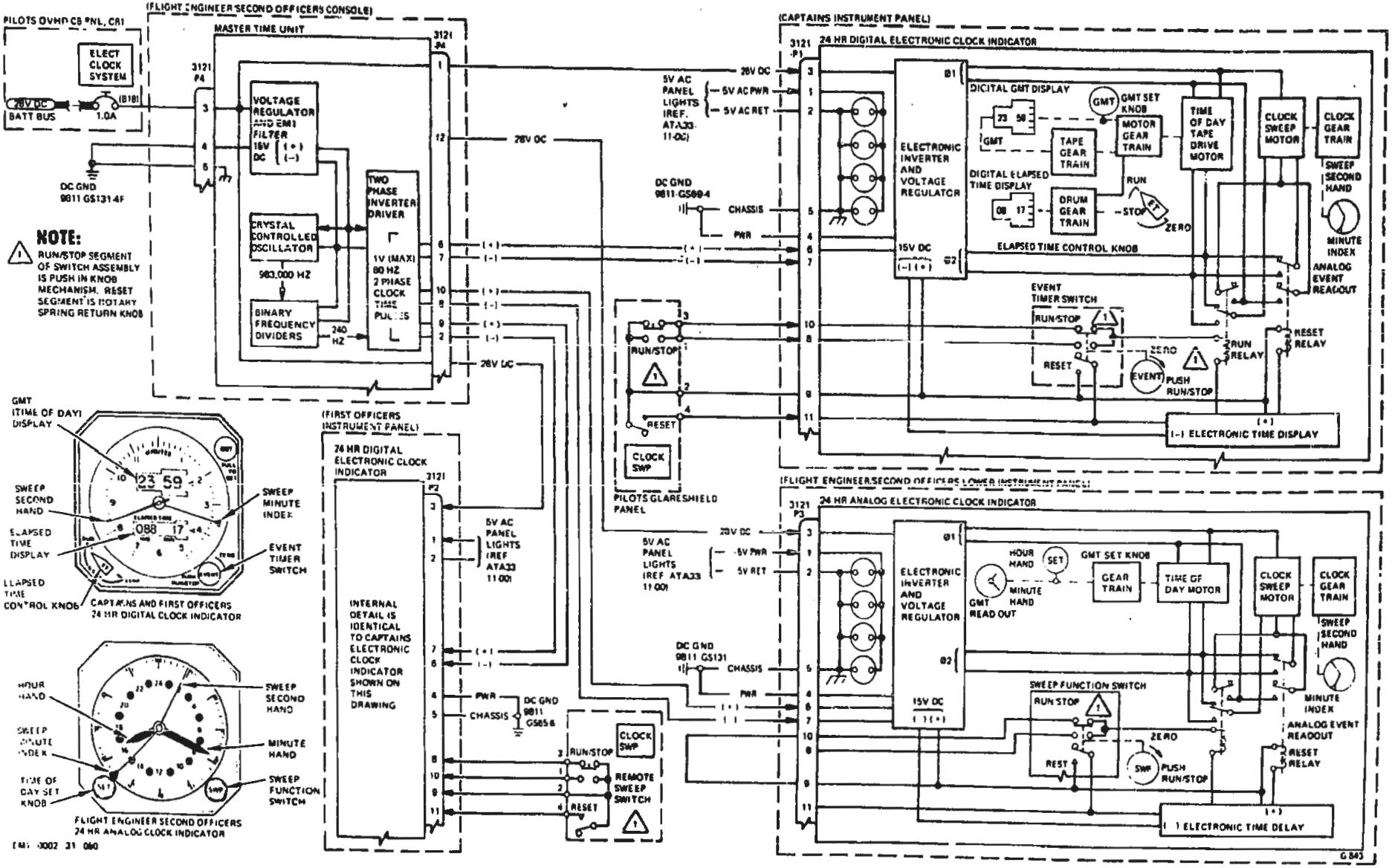
M1-0000-31-267

R R Component Location Index
Figure 101

R EFFECTIVITY: ALL
R
001B



Component Locator Diagram
Figure 102



Electronic Clock System Schematic
SCHEM 1

EFFECTIVITY: ALL

ELECTRONIC CLOCK SYSTEM - ADJUSTMENT AND TEST

1. Referenced Procedure

24-00-00 Electrical Power - Maintenance Practices

2. Adjustment/Test

A. Operational Test

(1) On Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215, verify that the following circuit breaker is closed:

5 VAC FLT ENGR INSTRUMENT PANEL - LOWER - RIGHT (BB14).

On pilots overhead circuit breaker panel CB1, zone 210, verify that the following circuit breakers are closed:

5 VAC INSTRUMENT LIGHTING - CAPT - L (L20),

5 VAC INSTRUMENT LIGHTING - F/O - L (L24).

(2) On pilots overhead circuit breaker panel CB1, zone 210, open and tag circuit breaker ELECT - CLOCK - SYSTEM (B18).

(3) Turn on electrical power (Ref. 24-00-00).

(4) On Captains and First Officers glareshield subpanels and Flight Engineer/Second Officers LIGHTS control panel, rotate INSTR rheostat knob to BRT position. Observe increase in intensity of illumination lamps in respective crewmembers clocks. See that all illumination lamps in each clock are on. Rotate INSTR knob to OFF. Lights must go out.

(5) On Flight Engineer/Second Officers clock indicator, verify time set function by using SET knob to adjust clock indicator to time-of-day.

(6) On Captains and First Officers clock indicators:

(a) Verify time set function using GMT knob to set GMT digital readout indicator to same time-of-day as set in Step (5).

(b) Set ET (elapsed time function switch) to STOP position.

R (7) Remove tag and close circuit breaker opened in Step 2A
R (2).

(8) Verify that all three clocks begin operating.

NOTE: Flight Engineer/Second Officers clock operation is indicated by moving hour, minute, and sweep-second hands and sweep-minute index. If sweep-second hand and sweep-minute index are not moving, they may have been in reset when power was last removed from the system. If so, they must be at the 12-o'clock position. Momentarily push in SWP knob to initiate sweep-second hand and sweep-minute index movement. Captains and First Officers clock operation is indicated by sweep-second hand and sweep-minute index rotation and continuous movement of the minutes tape in the GMT digital readout indicator.

(9) On Flight Engineer/Second Officers clock indicator:

(a) Momentarily push in SWP knob. Verify that both sweep-second hand and sweep-minute index stop moving.

(b) Again, momentarily push in SWP knob. Verify that sweep-second hand and sweep-minute index resume sweeping from stopped position.

(c) Rotate SWP knob in direction of ZERO arrow and release knob. Verify that SWP knob returns to previous spring-loaded position and that both sweep-second hand and sweep-minute index rotate back to the 24-o'clock position and resume sweeping clockwise.

(d) Push in SWP knob and rotate knob in direction of ZERO arrow. Release knob. Verify that knob returns to spring-loaded position and that sweep-second hand and sweep-minute index rotate back to and remain at the 24-o'clock position.

(e) Momentarily push in SWP knob. Verify sweep-second hand and sweep-minute index resume sweeping.

(10) On Captains and First Officers clock indicators:

(a) Repeat Step 2A(9) using EVENT knobs.

(b) Repeat Step 2A(9) using remote CLOCK SWP switches on glareshield panel.

(c) Set ET switch lever to RUN position. Verify that minutes tape in ELAPSED TIME digital readout indicator begins to display elapsed time.

(d) Set ET switch to STOP position. Verify that digital readout indicator stops operating.

(e) Momentarily place ET switch to spring-return ZERO position. Verify that ELAPSED TIME indicator resets to display 00 hours and 00 minutes. Switch lever must return to STOP position when released.

R (11) On pilots overhead circuit breaker panel CB1, zone 210,
R open ELECT - CLOCK - SYSTEM (B18) circuit breaker. Verify that all three clock indicators stop operating at the same time of day.

R (12) Close circuit breaker opened in Step 2A(11). Verify that all three clock indicators resume operation.

R (13) Turn off electrical power (Ref. 24-00-00).

ELECTRONIC CLOCK INDICATOR - REMOVAL AND INSTALLATION

1. Referenced Procedure

   31-21-00 Electronic Clock System - Adjustment and Test

2. Equipment and Materials

   Protective caps

3. Removal/Installation

   A. Removal

      (1) On pilots overhead circuit breaker panel CB1, zone 210, open and tag circuit breaker ELECT - CLOCK - SYSTEM (B18).

          If Captains clock indicator is to be removed, open and tag circuit breaker 5 VAC INSTRUMENT LIGHTING - CAPT - L (L20) on pilots overhead circuit breaker panel CB1, zone 210.

          If First Officers (F/O) clock indicator is to be removed, open and tag circuit breaker 5 VAC INSTRUMENT LIGHTING - F/O - L (L24) on pilots overhead circuit breaker panel CB1, zone 210.

          If Flight Engineer/Second Officers clock indicator is to be removed, open and tag circuit breaker 5 VAC FLT ENGR INSTRUMENT PANEL - LOWER - RIGHT (BB14) on Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215.

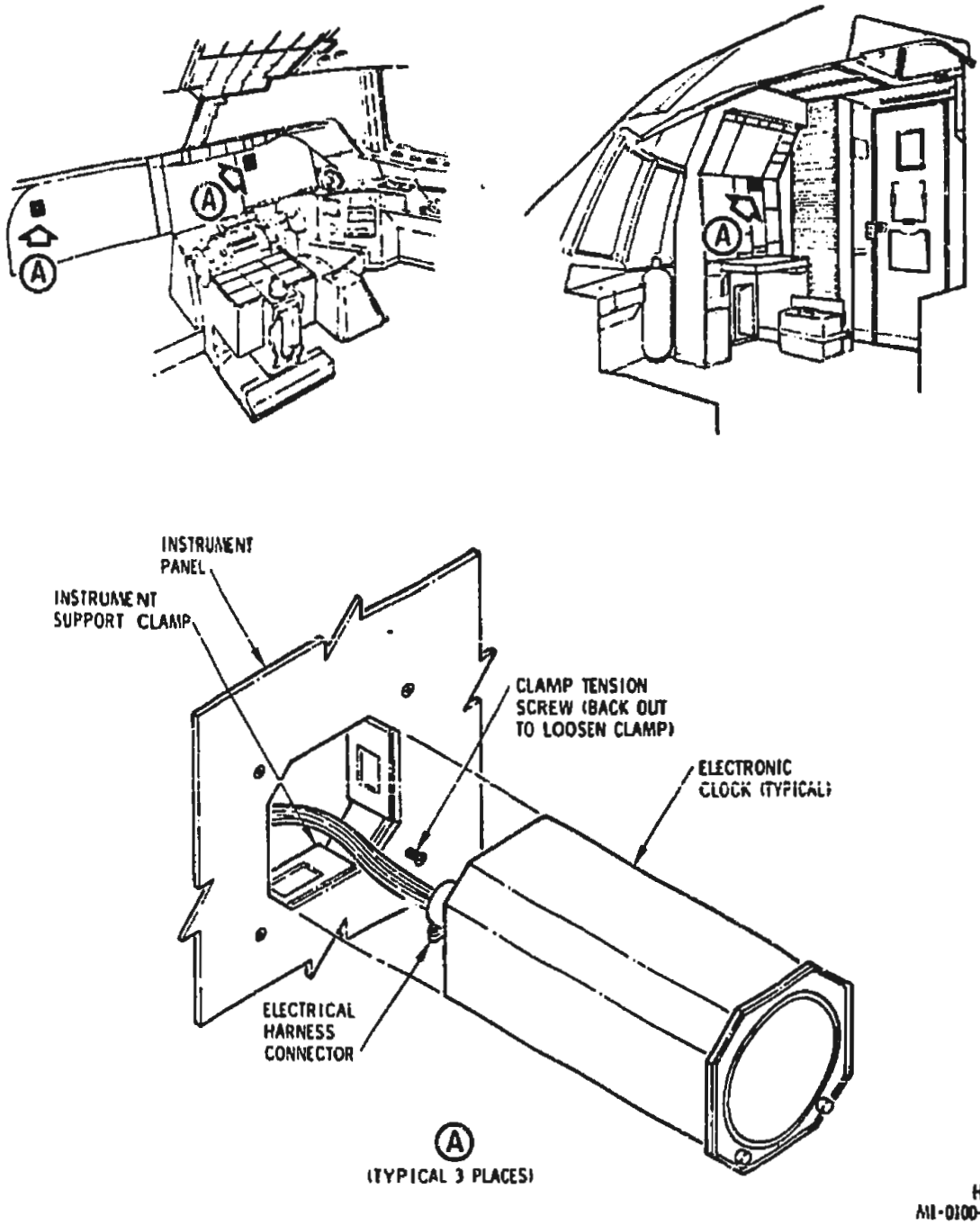
R   (2) Loosen, but do not remove lower right instrument clamp screw (Ref. Fig. 401).

      (3) Withdraw clock indicator from instrument panel until electrical connectors at rear of indicator are accessible.

      (4) Disconnect electrical harness from rear of clock indicator, and remove indicator.

      (5) Install protective caps on exposed electrical connectors.

   B. Installation



Electronic Clock Indicator - Removal and Installation
Figure 401

(1) Verify that circuit breakers opened in Step 3A(1) are open and tagged.

(2) Remove protective caps from electrical connectors on electronic clock indicator and electrical harness (Ref. Fig. 401).

(3) Connect electrical harness to connector at rear of clock indicator.

(4) Insert clock indicator through mounting clamp until indicator is flush against instrument panel surface.
R Torque lower right instrument clamp screw between 5 and
R 8 lb-in.

(5) Remove tags and close circuit breakers opened in Step 3A(1).

(6) Perform electronic clock system adjustment/test procedure (Ref. 31-21-00).

4. Lamp Replacement

A. Electronic Clock Indicator

R Two lamps for clock face illumination are installed under each of two triangular cover plates on each clock indicator bezel.

(1) Open and tag circuit breakers for applicable electronic clock indicator as follows:

Captains clock indicator: On pilots overhead circuit breaker panel CB1, zone 210, 5 VAC INSTRUMENT LIGHTING - CAPT - L (L20).

First Officers clock indicator: On pilots overhead circuit breaker panel CB1, zone 210, 5 VAC INSTRUMENT LIGHTING - F/O - L (L24).

Flight Engineer/Second Officers clock indicator: On Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215, 5 VAC FLT ENGR INSTRUMENT PANEL - LOWER - RIGHT (BB14).

(2) Remove applicable (one of two) lamp cover plates on front bezel of clock indicator by loosening cover plate captive screw.

(3) Slip a short length of 0.125-inch-diameter plastic
R tubing over lamp being replaced, and use tubing to
R disengage lamp from lamp socket.

(4) Slip plastic tubing over new lamp. Carefully align lamp pins with mating holes in socket and install lamp. Remove plastic tubing.

(5) Reinstall lamp cover.

(6) Remove tag and close circuit breaker opened in Step 4A(1).

R (7) Rotate INSTR lights rheostat at applicable flight station (Captains, F/O, or FE/SO) and check clock lamps for varying intensity.

MASTER TIME UNIT - REMOVAL AND INSTALLATION

1. Referenced Procedure

   31-21-00 Electronic Clock System - Adjustment and Test

2. Equipment and Materials

   Protective caps

3. Removal/Installation

   A. Removal

      (1) On pilots overhead circuit breaker panel CB1, zone 210, open and tag circuit breaker ELECT - CLOCK - SYSTEM (B18).

      (2) On Flight Engineer/Second Officers upper panel, release fasteners and withdraw the integrated pneumatic systems subpanel against track-mechanism stops (Ref. Fig. 401).

      (3) Disconnect electrical harness from master time unit.

      (4) Remove screws securing master time unit, and remove master time unit.

      (5) Install protective caps on electrical connectors.

   B. Installation

      (1) Verify that circuit breaker opened in Step 3A(1) is open and tagged.

      (2) Remove protective caps from electrical connectors.

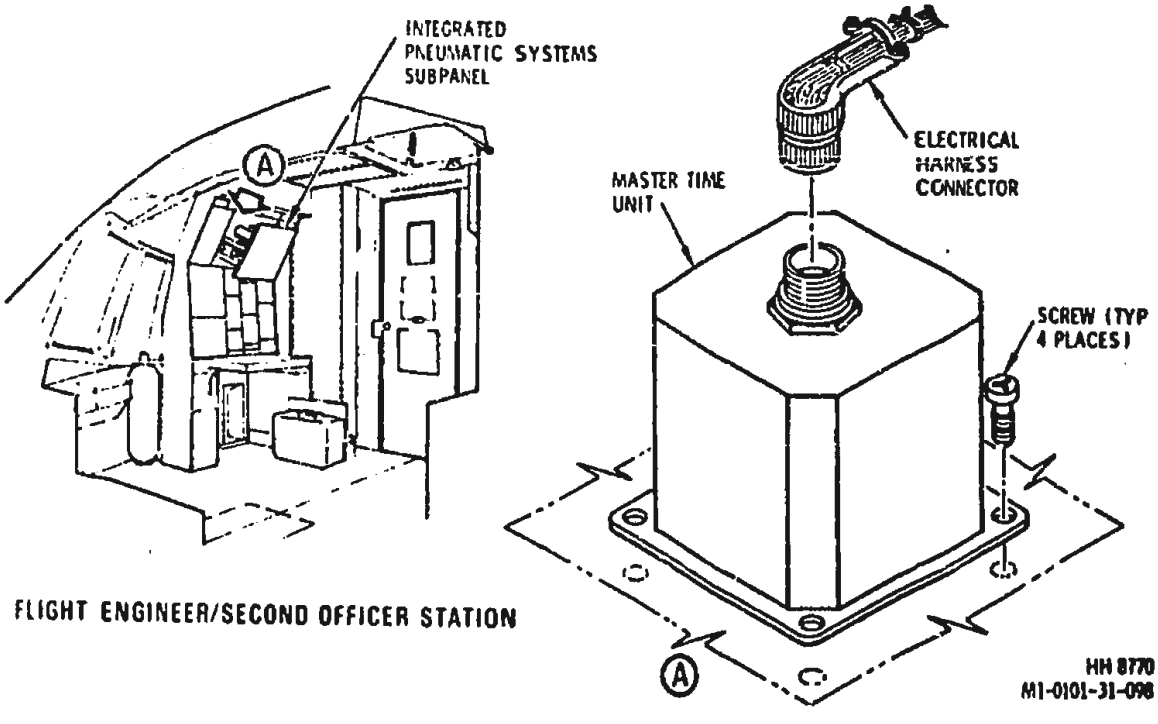
R R (3) Mount master time unit on support angles in Flight Engineer/Second Officers console and secure with screws.

      (4) Connect electrical harness plug to receptacle on master time unit.

      (5) Close and fasten integrated pneumatic systems subpanel.

      (6) Remove tag and close circuit breaker opened in Step 3A(1).

(7) Perform electronic clock system adjustment/test procedure (Ref. 31-21-00).



Master Time Unit - Removal and Installation
Figure 401

ELECTRONIC CLOCK REMOTE SWEEP FUNCTION SWITCH REMOVAL AND INSTALLATION

1. Referenced Procedure

   31-21-00 Electronic Clock System - Adjustment and Test

2. Removal/Installation

   A. Removal

      (1) On pilots overhead circuit breaker panel CB1, zone 210, open and tag circuit breaker ELECT CLOCK SYSTEM (B18).

      (2) Remove cover under glareshield panel zone 210.

R R (3) Remove remote sweep function (CLOCK SWP) switch knob (Ref. Fig. 401).

      (4) Reach behind glareshield panel and hold switch while removing attaching screws from forward side of panel.

R (5) Identify harness wires and associated switch terminals. Remove terminal screws securing wires to switch.

      (6) Reinstall screws on removed switch.

   B. Installation

      (1) Verify that circuit breaker opened in Step 2A(1) is open and tagged.

      (2) Remove wire attach screws from switch terminals.

      (3) With wires and switch terminals identified as in Step 2A(5), connect wires to corresponding switch terminals.

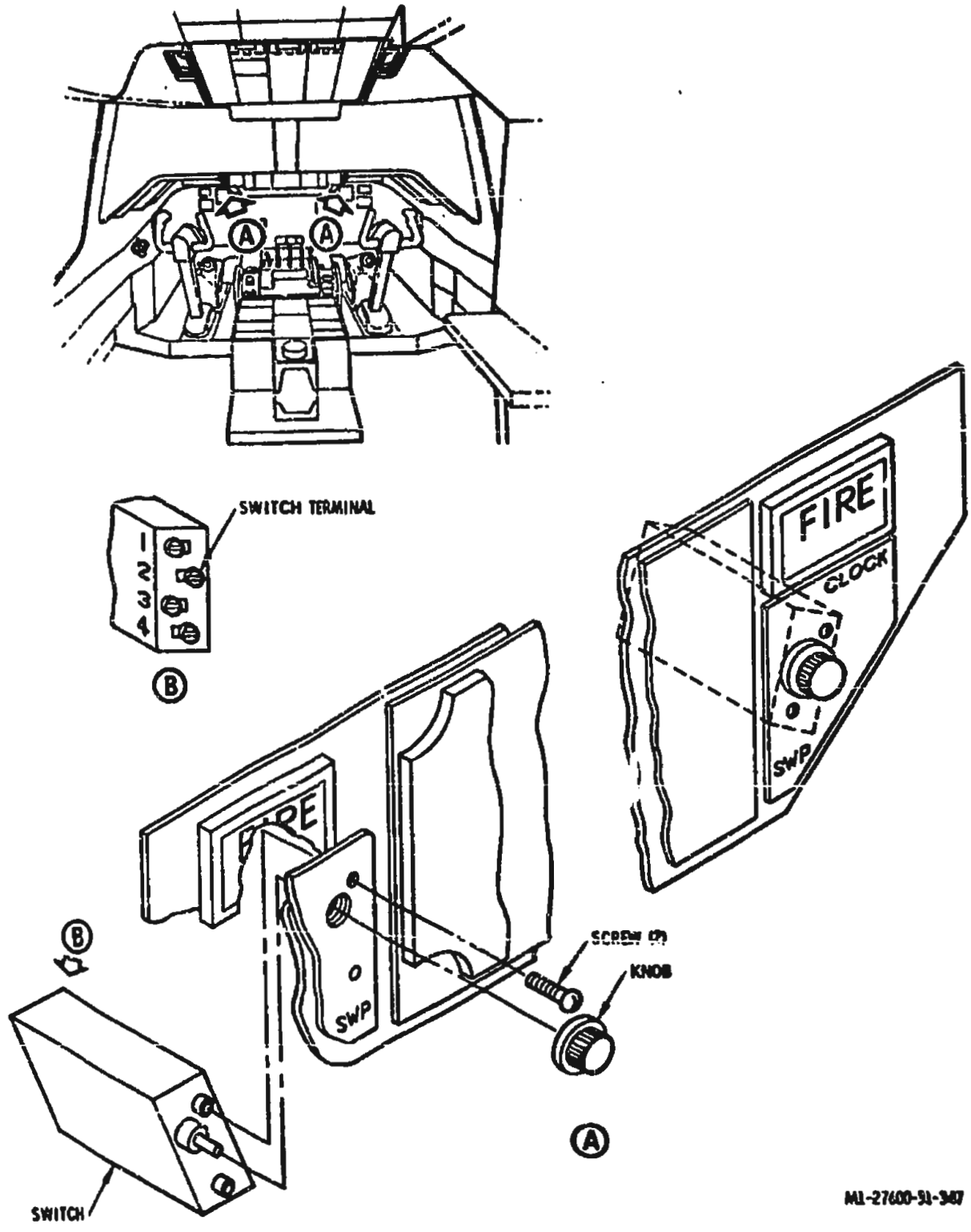
R (4) Hold switch in installed position on rear of glareshield panel and install attach screws from front side of panel (Ref. Fig. 401).

      (5) Install switch knob.

      (6) Reinstall cover under glareshield panel.

      (7) Close circuit breaker opened in Step 2A(1).

      (8) Perform electronic clock system adjustment/test procedure (Ref. 31-21-00).



R Electronic Clock Remote Sweep Function Switch
R Removal and Installation
R Figure 401

PROXIMITY SWITCH SYSTEM/AURAL WARNING SYSTEM DESCRIPTION AND OPERATION

1. General

This section contains the proximity switch system and the aural warning system. The proximity switch system monitors, controls, and displays to the flight crew the position and status of various moving devices of the aircraft. The aural warning system provides audible warnings of unsafe or abnormal flight conditions to the pilots.

2. Proximity Switch System

A. Description and Operation

The proximity switch system (Ref. Fig. 1) consists of switching and logic systems as represented by the proximity switch card box and the proximity switch logic card box, both of which are located on the aft bulkhead of the mid electrical service center, zone 137. The proximity sensors are installed remotely at points of function monitoring and provide inputs to the proximity switch card box (Ref. Fig. 2). The proximity sensors are situated in the following areas to monitor position and status:

Landing gear and gear doors (Ref. 32-61-00)

Truck (Ref. 32-61-00)

Nose and main landing gear squats (Ref. 32-63-00)

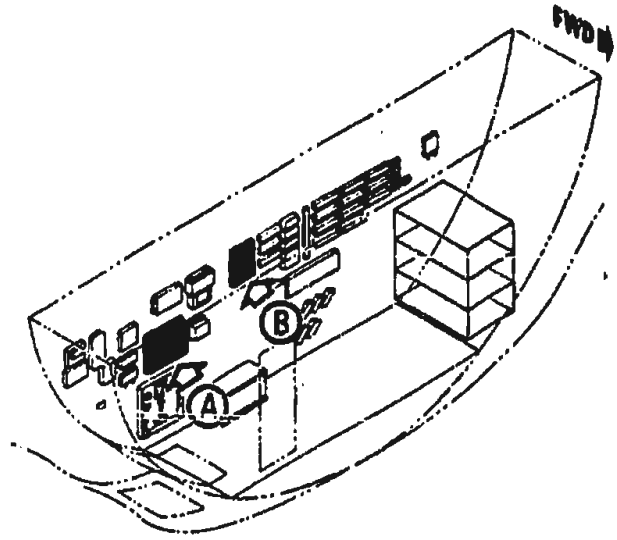
Thrust reversers (Ref. 78-30-00)

Slats (Ref. 27-81-00)

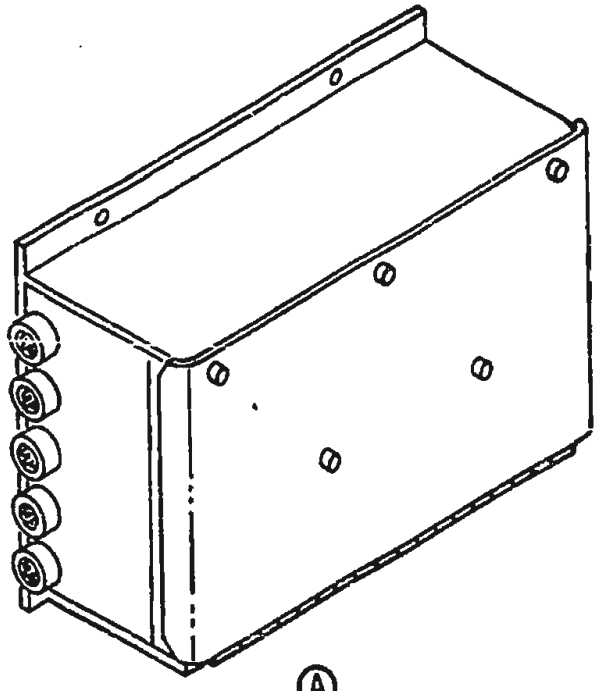
Tail skid (Ref. 32-71-00)

Doors (Ref. 52-00-00)

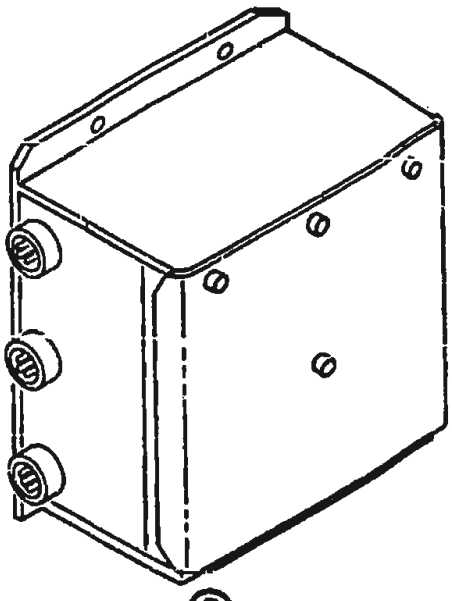
R The sensor with current flowing through it produces a magnetic field around the sensing surface. When a target is brought into proximity with the sensor surface by movement of the item sensed, the magnetic field is varied. This condition is detected by the proximity switch card box and the output switch is actuated. The output signal is fed to the proximity switch logic box for further processing, or fed to a driver channel of the proximity switch box which



MID ELECTRICAL SERVICE CENTER
ZONE 137



(A)
PROXIMITY SWITCH CARD BOX

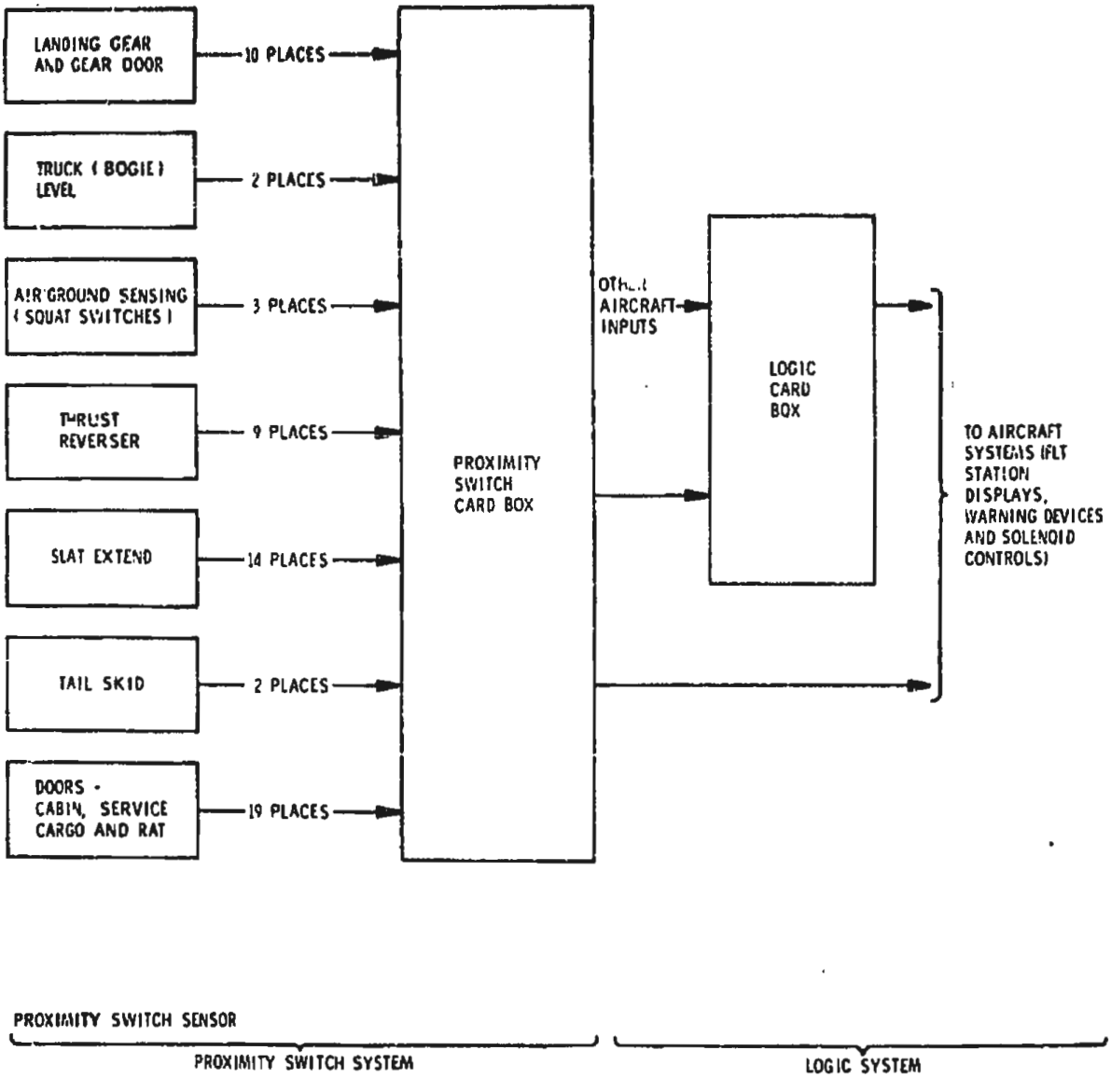


(B)
PROXIMITY SWITCH LOGIC CARD BOX

M1-9500-31-349

R
R

Proximity Switch System
Figure 1



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R R Proximity Switch System Block Diagram
Figure 2

EFFECTIVITY: ALL

001B

provides output directly to the flight station display, warning device, or solenoid control.

The proximity switch logic card box consists of various solid state circuit cards. These cards convert data received from the proximity switch card box and other aircraft monitoring switches to information required for cockpit displays, warning devices, and solenoid control. The following systems interface with the logic system:

Landing gear and doors

Landing gear horn

Truck (bogie) level

Air/ground sensing (squat switches)

Takeoff position warning

Slat extension

Thrust reverser

Tail skid position

The proximity switch system receives power from the dc standby bus, dc essential bus, and dc ground service
R extension bus.

R The 28V dc standby bus power is applied to the proximity switch card box nose and main landing gear switching circuits through the LANDING GEAR - PROX SW PWR - NO. 1 (L10) circuit breaker on the pilots overhead circuit breaker panel CB1, zone 210. The 28V dc standby bus power is also applied to another portion of main landing gear switching circuits through the LANDING GEAR - PROX SW POWER - NO. 4 (L11) circuit breaker on the CB1 and through the ground service control relay (Ref. 24-41-00).

The 28V dc essential power is applied to the proximity switch card box through the PROXIMITY SWITCH - 2 (H3) and 3 (H4) circuit breakers on the Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215.

R The PROXIMITY SWITCH - 2(H3) circuit breaker powers the following switching circuits of the proximity switch card box: left aft entry door, right forward entry door, thrust reversers NO. 1 and No. 3, left emergency door, left slats, galley service door, forward cargo door, S-duct access, and left truck.

R The PROXIMITY SWITCH - 3(H4) circuit breaker powers the following switching circuits: nose gear squat, right center and aft entry doors, left forward and center entry doors, left emergency door, S-duct access, service center doors, center and aft cargo doors, thrust reverser No. 2, RAT deployed, right slats, tail skid, escape hatch, and right truck.

R The 28V dc ground service power is applied during ground operation to a portion of main landing gear switching circuit through the MLG DOORS PWR - GND SVCE circuit breaker on the galley left circuit breaker panel, and through the ground service control relay.

3. Proximity Switch Card Box

A. Description

R The proximity switch card box (Ref. Fig. 3) contains 20, 4-channel switch cards and 8, 5-channel lamp driver cards. A hinged cover provides access to the plug-in circuit cards and the Built-In-Test-Equipment (BITE). The BITE controls comprise a rotary selector switch, a two-position toggle test switch, and two indicator lamps. A chart on the BITE control panel identifies the circuit cards associated with each selector position. A decal inside the box cover identifies aircraft system functions with selector position.

CAUTION: ENSURE THAT THE CARD TEST SELECTOR ROTARY SWITCH IS RETURNED TO THE OFF POSITION AFTER COMPLETION OF BITE TESTS. THE SELECTOR SWITCH WHEN LEFT IN ANY POSITION OTHER THAN OFF, MAY RESULT IN A NON-DESTRUCTIVE MALFUNCTION OF INTERNAL CIRCUITRY.

B. Operation

R The block diagram in Figure 4 shows a four-channel switch circuit card and a five-channel driver circuit card, which are typical of all circuit boards within the proximity switch card box.

Each switch channel consists of a remotely located proximity sensor and a solid-state switch circuit. The sensor forms two legs of a bridge circuit. One leg is a coil; the other leg is a temperature-compensating resistor. Current flow through the sensor coil produces a magnetic field around the sensing surface. When the target is brought into proximity with the sensing surface, the magnetic field is varied and the bridge circuit is unbalanced. The resulting voltage difference between the bridge circuit and the reference

voltage is detected in the comparator circuit, and the output switch is actuated.

The output signal of a switch channel can be routed directly to the logic box, to the driver channel circuit cards within the box, or to both. The output signal of a driver channel is supplied directly to the aircraft system without going through the logic card box.

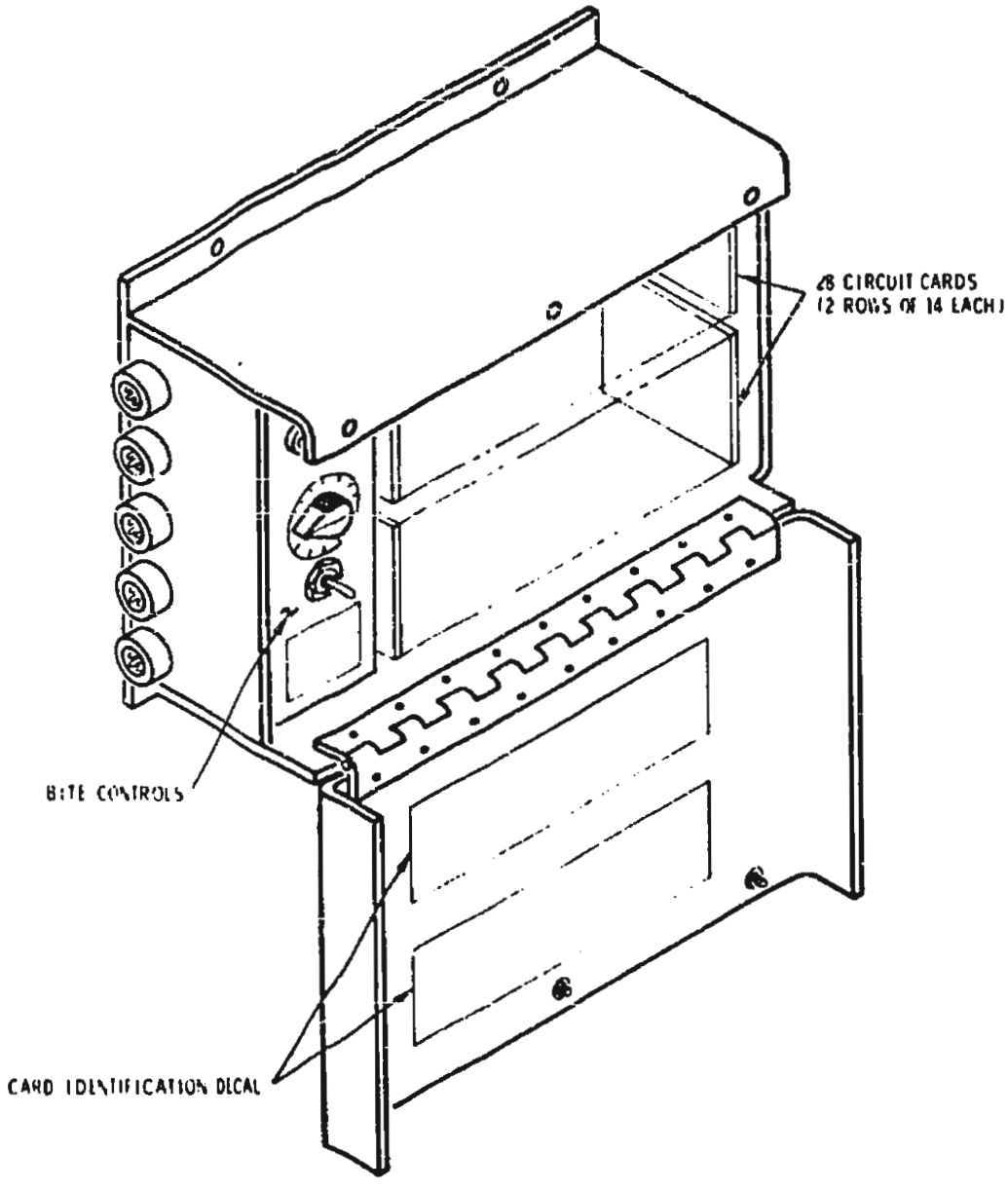
The BITE system verifies circuit card performance by balancing or unbalancing the switch channel bridge circuits to simulate on- or off-target conditions. The output switches are monitored for proper operational mode; status is indicated by indicator lamps. The BITE system will not indicate a disconnected sensor unless all four sensors connected to a four-channel switch card are open circuit. The BITE indicators will, however, indicate a fault if a failed sensor is connected to the switch card.

4. Proximity Switch Logic Card Box

A. Description and Operation

R The proximity switch logic card box (Ref. Fig. 5) contains the solid state circuitry which converts data from the proximity switches and other aircraft monitoring switches to information required for flight station displays, warning
R devices, and control solenoids (Ref. Fig. 6). A hinged cover provides access to the printed circuit cards and the
R built-in-test-equipment (BITE). The BITE controls are
R comprised of a rotary selector switch, a toggle switch, a pushbutton switch, and an indicator lamp. A chart on the BITE control panel identifies the circuit card associated with each selector position. A decal inside the box cover identifies aircraft system functions with circuit card locations. The BITE system verifies circuit card performance by applying simulated inputs at the buffer amplifiers and monitoring the output drivers.

CAUTION: ENSURE THAT THE CARD TEST SELECTOR ROTARY SWITCH IS RETURNED TO THE OFF POSITION AFTER COMPLETION OF BITE TESTS. THE SELECTOR SWITCH, WHEN LEFT IN ANY POSITION OTHER THAN OFF MAY RESULT IN A NON-DESTRUCTIVE MALFUNCTION OF INTERNAL CIRCUITRY.



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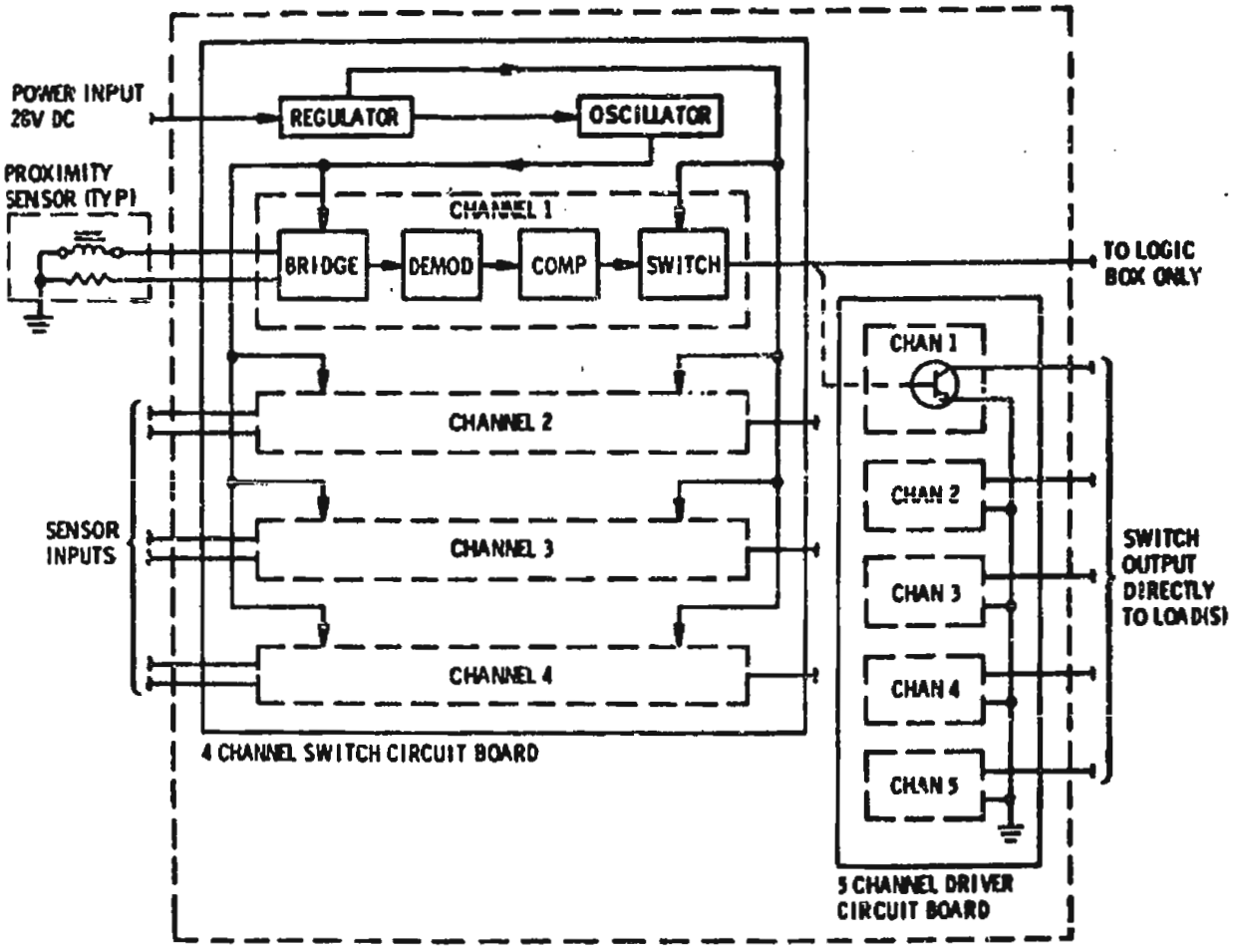
R Proximity Switch Card Box
R Figure 3



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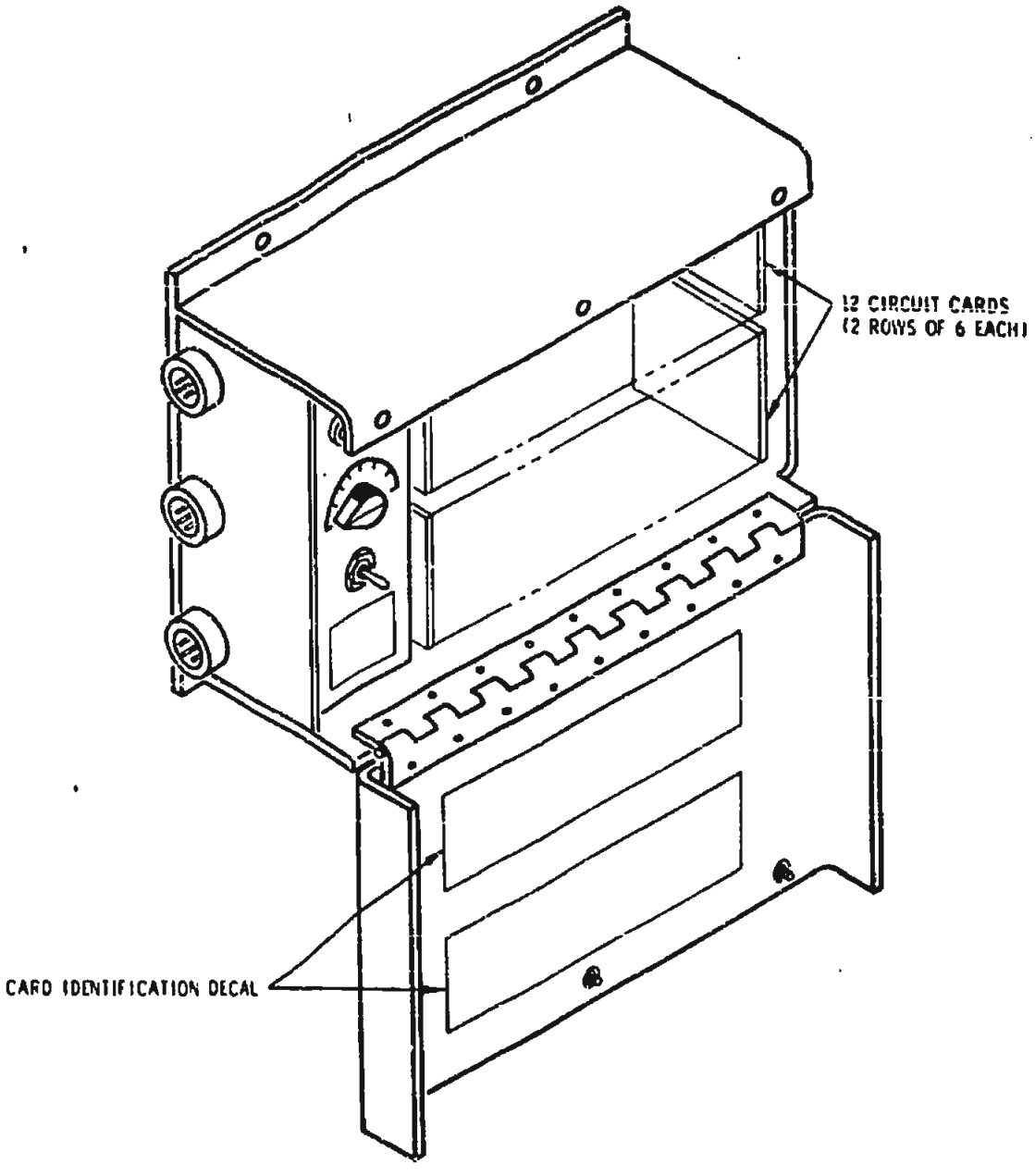
R Proximity Switch Card Box Block Diagram
R Figure 4



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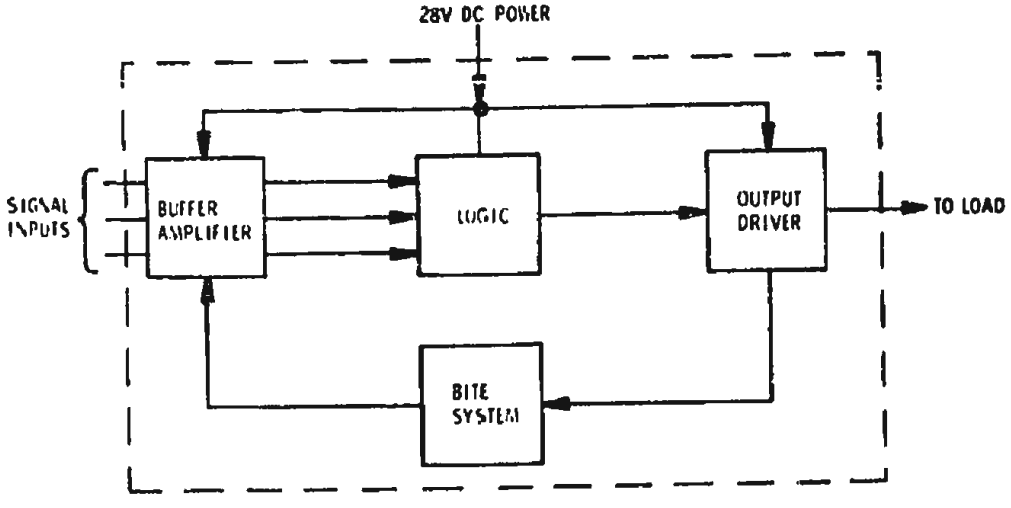
Proximity Switch Logic Card Box
Figure 5

5. Aural Warning System

A. Description

The aural warning system provides easily distinguishable audible warnings to alert the flight crew of unsafe or abnormal flight conditions. The aural warning system (Ref. Fig. 7) consists of an aural warning unit, an aural warning test panel, landing gear warning horn cutout switch, a cabin pressure warning horn cutout switch, a multi-sound speaker, and a clacker speaker. The aural warning unit is located under the Flight Engineer/Second Officers (FE/SO) work table, zone 215. The aural warning test panel is located on the aft center of the FE/SO upper console. The GEAR HORN CUTOUT switch is located on the pilots center console. The cabin pressure warning HORN CUTOUT switch is located on the FE/SO upper console above cabin pressure control panel. The multi-sound speaker is mounted on the trim panel above the FE/SO upper console. The clacker speaker is mounted on the trim panel below the flight crew emergency escape hatch, zone 211.

Table 1 lists the aural warning tones and the associated unsafe conditions.



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R Proximity Switch Logic Card Box Block Diagram
R Figure 6

Aural Warnings
Table 1

TONE	CONDITION
Steady horn	Unsafe landing
Intermittent horn	Unsafe takeoff
Intermittent horn	Unsafe cabin pressure
Clacker	Aircraft overspeed
Musical C-chord	Altitude alert
Wailer	Autopilot disengagement
Alternating tone	Galley smoke detector
Alternating tone	Galley exhaust duct overheat

B. Operation

(1) System Power

R The aural warning system (Ref. Fig. 8) receives 28V dc power from the aircraft standby bus through the following circuit breakers on the pilots overhead circuit breaker panel CB1, zone 210:

AURAL WARN - TEST & RESET (L6) - Provides unsafe cabin pressure warning horn cutout power, and provides test power to the aural warning unit through the aural warning test panel switches.

AURAL WARN - OVSP (L7) - Provides power to the clacker circuit of the aural warning unit where the power is applied to the output stage of the clacker power amplifier and regulated to 15V dc for the integrated circuit operational amplifier.

AURAL WARN - MULT-SND (L8) - Provides power to the multi-sound power amplifier circuit of the aural warning unit where the power is applied to the power amplifier output stage and regulated to 12V dc for application to the multi-sound circuits.

LANDING GEAR WARN HORN (L12) - Provides 28V dc through the landing gear warning horn cutout switch as a landing warning inhibit signal.

Galley smoke detector (Ref. 26-15-00), smoke warning test, and smoke warning horn cutout circuits receive 28V dc from the ground service extension bus through the GALLEY SMOKE DETECT (E22) circuit breaker on the galley left circuit breaker panel, zone 131.

(2) Warning Conditions

R The aural warning system (Ref. Fig. 8) provides audible warnings under the following conditions:

(a) Steady Horn (Unsafe Landing)

A steady horn sound is generated if the landing gear is not down and locked with one or more power levers retarded below the minimum flight position and airspeed less than 180 KIAS. The horn may be silenced by depressing either the GEAR HORN CUTOUT pushbutton switch on the pilots center console, zone 210, or the HORN CUTOUT pushbutton switch on the Flight Engineer/Second Officers upper panel, zone 215.

The horn will also sound if the landing gear is not down and locked with the wing flaps extended for landing, regardless of airspeed. In this condition the horn cannot be silenced.

The proximity switch logic box receives signals generated by the position of the power levers (Ref. 76-11-00) and the flaps (Ref. 27-51-00), and a logic ground signal from the air data computer No. 1 (Ref. 34-14-00).

(b) Intermittent Horn (Unsafe Takeoff)

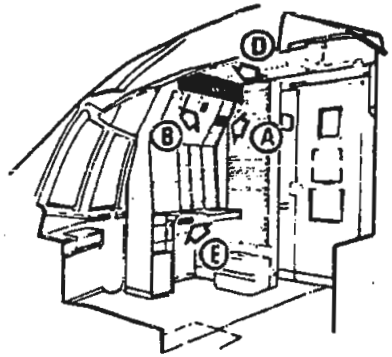
An intermittent horn sound is generated to indicate unsafe takeoff conditions and cannot be silenced until the abnormal condition has been corrected. The sound is generated when two of the three throttles are advanced beyond 50 percent of the takeoff thrust position and any of the following conditions exist:

Trailing edge flaps not in takeoff position

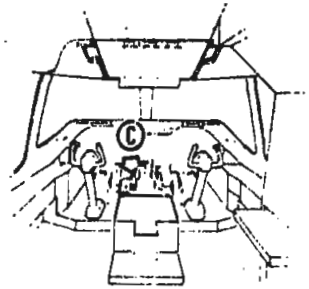
Pitch trim not within normal takeoff range

Slats not fully extended

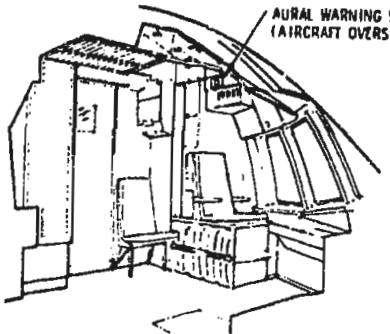
Speed brake lever not in spoilers-retracted position.



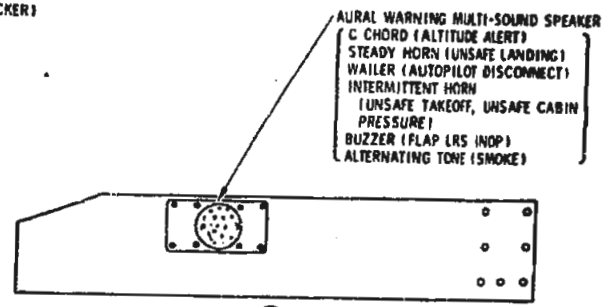
FLIGHT ENGINEER/SECOND OFFICERS STATION
ZONE 214



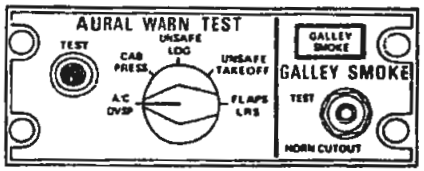
FLIGHT STATION
ZONE 210



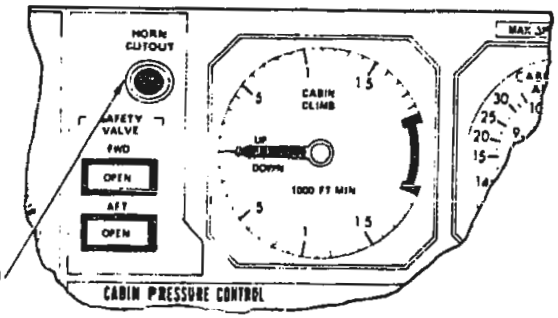
OBSERVERS STATION
ZONE 211



D
TRIM PANEL ABOVE FE/SO CONSOLE

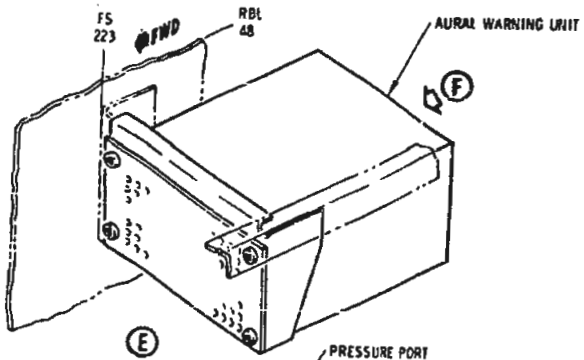


A
AURAL WARNING TEST GALLEY SMOKE PANEL

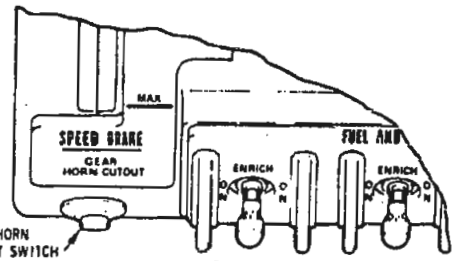


CABIN PRESSURE
WARNING HORN CUTOUT SWITCH

B

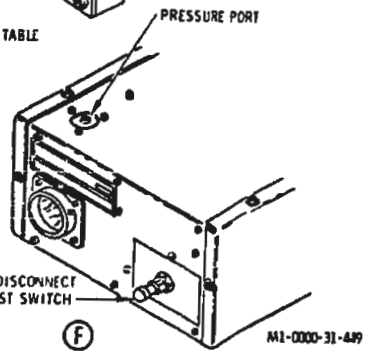


E
UNDER FE/SO TABLE



GEAR HORN
CUTOUT SWITCH

C



M1-0000-31-449

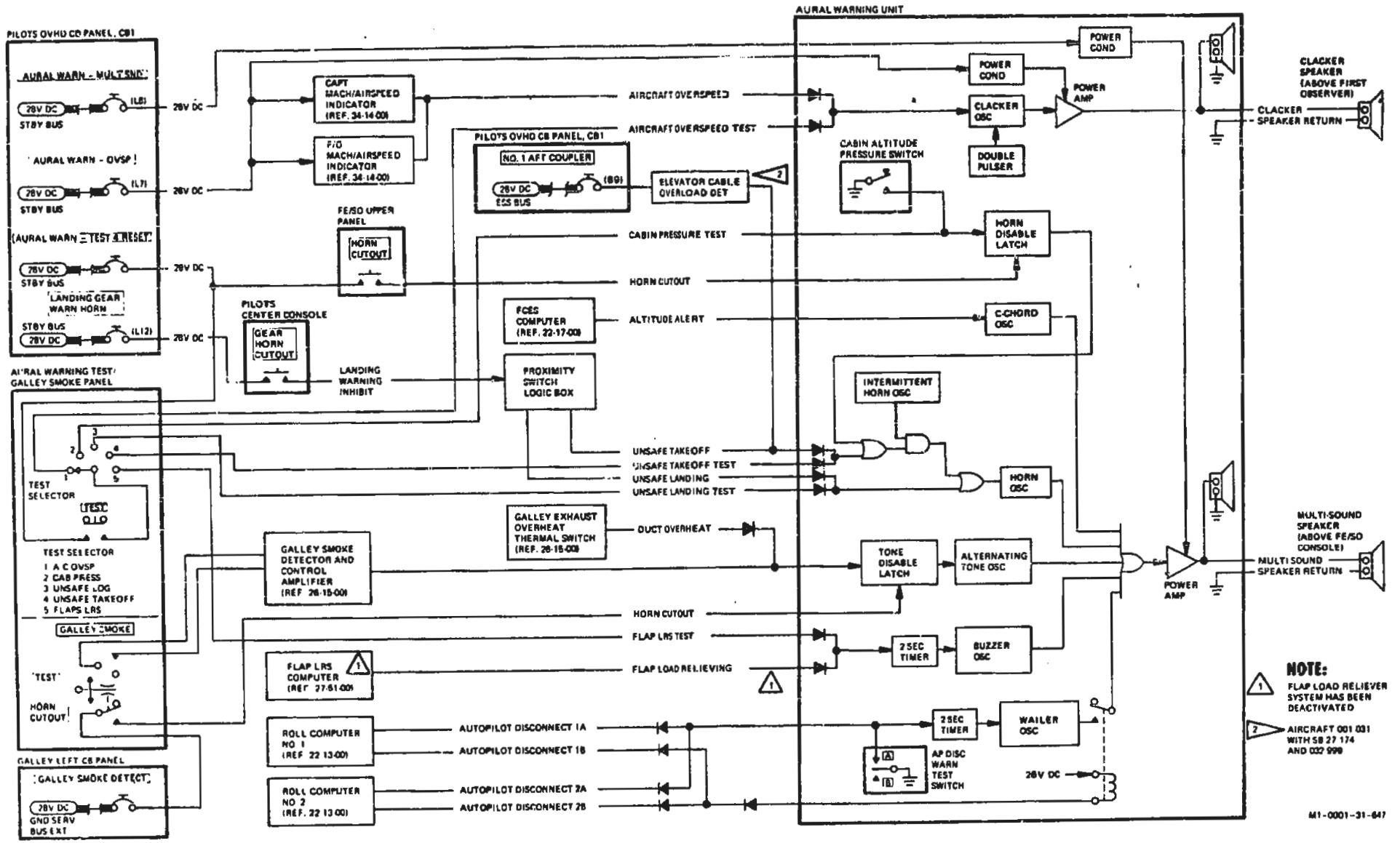
REAR OF AURAL WARNING UNIT

R
R

Aural Warning System
Figure 7

EFFECTIVITY: ALL

0018



Aural Warning System Block Diagram
Figure 8

CR
CR

EFFECTIVITY: ALL

0018

On aircraft 001-031 with SB27-174 and 032-999, the intermittent horn also sounds to indicate an elevator drive overload (possible elevator jam) with the aircraft on the ground and all power levers below 50 percent of takeoff thrust.

The proximity switch logic box receives signals generated by the position of the power levers (Ref. 76-11-00), the horizontal stabilizer trim (Ref. 27-41-00), the wing trailing edge flaps (Ref. 27-51-00), and the speed brakes (Ref. 27-61-00).

(c) Intermittent Horn (Unsafe Cabin Pressure)

An intermittent horn provides warning of unsafe cabin pressure at 10,000 feet cabin altitude. The horn signal is generated within the aural warning unit by an aneroid pressure sensing unit. The horn is silenced and the circuit rearmed automatically if the cabin pressure increases to a value representing less than 8,200 feet altitude. A HORN CUTOUT pushbutton switch on the CABIN PRESSURE CONTROL panel of the Flight Engineer/Second Officers upper panel, zone 215, can be used to silence the horn manually.

(d) Clacker (Aircraft Overspeed)

A clacker sound is generated if the aircraft goes into an overspeed condition and cannot be silenced until the condition is corrected. A switch in either of the pilots airspeed/Mach indicators closes to provide the clacker signal. Maximum allowable airspeed is 0.9 Mach or 450 KIAS, whichever is less (Ref. 34-14-00).

(e) Musical C-chord (Altitude Alert)

A musical C-chord (0.5-second aural tone) is generated by the aural warning unit as a function of the autoflight altitude alert system (Ref. 22-17-00). When the aircraft approaches to within 250 feet of a selected altitude, a signal voltage from the autoflight Flight Control Electronic System (FCES) computer activates the C-chord. The C-chord is also activated upon deviation of 250 feet from selected altitude (ascending or descending). The system automatically resets after timing out (0.5 seconds), or selection of another altitude.

(f) Wailer (Autopilot Disengagement)

A wailing sound is generated for two seconds whenever the autopilot disengages for any reason other than as a result of commands initiated through the Captains or First Officers controls. The aural warning may be silenced by actuating the autopilot disengage switch on the Captains or First Officers control wheel. The signals to energize the wailer come from the autopilot/flight director system roll computer No. 1 or No. 2 (Ref. 22-13-00). Two auto pilot disconnect annunciator signal lines are available from each roll computer, one for channel A and one for channel B. Any two signals, both from one computer or one A and one B from different computers, will energize the wailer. A test switch on the rear of the Aural Warning Unit may be used to verify that there is no short to ground that will activate the alarm.

R

CR (g) Alternating Tone (Galley Smoke Warning)

An alternating tone is generated when smoke is detected in the galley. At the same time, a GALLEY SMOKE warning light on the aural warning test/galley smoke panel flashes. Placing the GALLEY SMOKE TEST/HORN CUTOUT switch on the panel to HORN CUTOUT position silences the alternating tone, however, the GALLEY SMOKE warning light will remain on until the smoke condition is cleared. The smoke detector and smoke detector control amplifier detect and process the warning signal (Ref. 26-15-00) to the aural warning unit. This system is isolated from other aural warning functions up to the aural warning unit power amplifier.

(h) Alternating Tone (Galley Exhaust Duct Overheat)

The galley exhaust duct overheat warning is activated when there is excessive heat in the duct. The overheat condition is detected by a thermal switch (Ref. 26-15-00) which, when closed, sends a 28V dc signal to the aural warning unit tone generating circuit common with smoke warning. The alternating tone may be silenced by placing the GALLEY SMOKE TEST/HORN CUTOUT switch on the aural warning test/galley smoke panel in HORN CUTOUT position. The duct overheat condition sensed by the thermal switch also causes the galley duct overheat alarm bell to sound in the

galley (Ref. 26-15-00). The alarm may be silenced by the galley attendant by depressing the alarm cutout switch located on the emergency galley power panel.

(3) Testing

The sound generating circuits within the aural warning unit, except for the altitude alert, autopilot disconnect, and smoke warnings, can be tested using the test selector and TEST switch on the aural warning test/galley smoke panel (Ref. Fig. 8). By selecting the desired warning condition with the test selector and depressing the TEST switch (Ref. Fig. 8), a test signal is applied to the related sound generating circuit within the aural warning unit. The test input being parallel to the actual warning input, the entire circuit is activated as with the actual warning. This test only checks the sound generating circuits and does not verify the serviceability of the entire aural warning system.

The smoke warning portion of the aural warning unit can be tested using the GALLEY SMOKE TEST/HORN CUTOUT switch on the aural warning test/galley smoke panel. When the switch is momentarily placed in the TEST position, the smoke condition is simulated in the smoke detection system which provides a smoke warning signal to the aural warning unit. The aural warning sounds for approximately 10 seconds as controlled by a timer. The generated warning can be silenced before 10 seconds has elapsed by momentarily placing the switch to the HORN CUTOUT position.

An autopilot warning test switch is provided on the rear of the aural warning unit (Ref. Fig. 8) to test the integrity of the wailer circuit. In the actual autopilot disconnect warning condition, two ground signals are required from the autopilot system, one to the wailer generating circuit (autopilot channel A) and one to the wailer signal output relay (autopilot channel B), to complete the wailer warning (Ref. Fig. 8). Placing the test switch in the autopilot A or B position applies a ground signal to activate only the associated wailer channel and absence of a wailer sound verifies that the other channel is not shorted to ground. This verifies that each individual input from the autopilot system will not inadvertently activate the aural warning.

6. Aural Warning Unit

A. Description and Operation

The aural warning unit is of a solid state construction. The unit contains four printed circuit cards, two speakers, two inductors, an EMI filter assembly, a pressure switch, and a test switch. The test switch is mounted on the rear of the unit. An electrical connector is provided on the rear of the unit for electrical interface.

The aural warning unit produces various types of sound to alert the flight crew to unsafe or abnormal conditions. The available warning sounds are clacker, steady horn, intermittent horn, musical C chord, wailer, buzzer, and alternating tone. The warning sound generating circuits are keyed by the 28V dc or ground signals fed from various aircraft systems. The keyed sound generating circuit produces a sound signal which is sent to drive the unit speaker as well as an associated external speaker. The test signal inputs provided by an aural warning test panel are similar and parallel to the actual warning key signal inputs.

The test switch provided on the aural warning unit is used to test the autopilot disconnect warning wailer circuit consisting of the wailer generating circuit and the wailer signal output control relay circuit. Under actual warning conditions, both circuits are activated by separate ground signals from the autopilot system to complete the wailer warning. Placing the test switch in one or the other (A or B) position applies a ground to the associated circuit, and absence of the wailer sound verifies that the other circuit is not shorted to ground.

7. Aural Warning Test/Galley Smoke Panel

A. Description and Operation

The aural warning test/galley smoke panel is used to test the aural warning unit, to test the galley smoke detection system, and to silence the galley smoke/duct overheat aural warning. The panel consists of a five-position rotary switch, a momentary pushbutton switch, a momentary three-position toggle switch, and a warning light. An electrical connector is provided on the rear of the panel for interface.

When testing the aural warning unit for the warning sound generation, the rotary switch is set to a desired position and the TEST switch located on upper left corner of the

panel is depressed. The aircraft 28V dc is passed through these switches to key the associated sound circuit of the aural warning unit.

In addition to testing the aural warning unit, the UNSAFE TAKEOFF position of the rotary switch is used to test the integrity of the cargo door warning circuit from the outputs of all the cargo door sensors to the caution lights. By selecting this position and depressing the TEST switch after all cargo doors are closed and locked, cargo door open condition is simulated by means of the cargo door warning test relay (Ref. 52-71-00) to turn on all cargo door caution lights on the FE/SO upper instrument panel.

The light comes on steady along with the aural warning when an overheat condition exists in the galley oven exhaust duct.

The GALLEY SMOKE TEST/HORN CUTOUT switch is a momentary three-position toggle switch spring-loaded to neutral (center) position. The HORN CUTOUT position silences the smoke warning horn. The switch in this position provides a signal to the aural warning unit to unlatch and reset the tone generating circuit. The TEST position provides a simulated smoke condition in the smoke detector, causing the smoke warning horn to sound and the GALLEY SMOKE light (above the switch) to come on. When the switch is actuated in TEST position, a timer in the smoke detector causes the aural warning and light to be on for approximately 10 seconds.

The GALLEY SMOKE light located above the TEST/HORN CUTOUT switch flashes along with the aural warning when the smoke detector senses a smoke condition and remains on until the smoke condition is cleared.

PROXIMITY SWITCH SYSTEM/AURAL WARNING SYSTEM - FAULT ISOLATION

1. General

Reference data and fault isolation procedures for troubleshooting system faults are included in this section of the manual. A system malfunction detected by the flight crew is normally entered in the aircraft flight log book and reported to the maintenance personnel by a FIRM fault code number. This number and the flight log book write-up can be found in the Fault Code Index. The index specifies the maintenance manual section, fault isolation diagram figure number, and where appropriate, a block number indicating the diagram entry point containing the fault isolation procedure. When no block number is specified, the diagram entry point is Block 1.

Prerequisites listed at the top of each diagram identify mandatory preliminary steps and circuit breakers that must be closed before initiating any fault isolation step.

Schematic diagrams, identified by a SCHEM number, supplement fault isolation procedures as maitenance aids. The schematics show the basic system circuitry necessary for troubleshooting and include cross-reference indexes to the wiring diagram manual pages required for checking component interconnect wiring.

2. Referenced Procedures

24-00-00	External Power/Ground Service System - Maintenance Practices
31-22-01	Proximity Switch Card Box - Removal and Installation
31-22-02	Proximity Switch Logic Card Box - Removal and Installation
33-18-04	Aural Warning System - Maintenance Practices

3. Proximity Switch System Fault Isolation/Identification

Proximity switch system fault isolation involves the use of built-in-test-equipment (BITE) on the switch card box and the logic card box. If a faulty circuit card is detected during the BITE check, replace the card and repeat the appropriate fault isolation BITE check. (Ref. Removal and Installation Procedure

31-22-01 for switch card box and 31-22-02 for switch logic card box).

As a troubleshooting aid, the proximity signal information and schematics are provided. Figure 112 shows overall proximity switch system signal flow.

A. BITE Check Preparation

(1) Turn on electrical power (Ref. 24-00-00).

(2) On Pilots overhead circuit breaker panel CB1, zone 210, verify that circuit breakers PROX SW PWR NO. 1 (L10) and PROX SW PWR NO. 4 (L11) are closed.

(3) On Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215, verify that circuit breakers PROXIMITY SWITCH 2 (H3) and PROXIMITY SWITCH 3 (H4) are closed.

B. BITE Check - Proximity Switch Card Box

R NOTE: Ensure that galley door latch closed switch is closed
R and working properly before checking switch card A22.

(1) Release cover on switch box, zone 137.

(2) Momentarily depress LAMP TEST pushbutton to verify that lamps come on.

(3) Determine card to be checked and place CARD TEST SELECTOR in proper position.

(4) Set toggle switch first to TEST 1, then to TEST 2; in each position the SWITCH CARD lamp and, if applicable, the DRIVER CARD lamp must come on. If lamp fails to come on, replace associated circuit card.

NOTE: A valid BITE test of the proximity switch card box and/or proximity logic card box causes a response, in the flight station, of warning lights and aural warnings associated with the test system.

(5) Check additional cards by placing CARD TEST SELECTOR in proper positions and operating toggle switch to TEST 1 and TEST 2 positions.

CAUTION: ENSURE THAT THE CARD TEST SELECTOR ROTARY SWITCH IS RETURNED TO THE OFF POSITION AFTER COMPLETION OF BITE TESTS. THE SELECTOR SWITCH, WHEN LEFT IN ANY POSITION OTHER THAN OFF, MAY RESULT IN A NON-DESTRUCTIVE MALFUNCTION OF INTERNAL CIRCUITRY.

(6) Place CARD TEST SELECTOR in OFF position after card testing is completed.

C. BITE Check - Proximity Switch Logic Card Box

(1) Release cover on logic box, zone 137.

(2) Momentarily depress LAMP TEST pushbutton to verify that BITE IND lamp comes on.

(3) Operate CARD TEST switch and verify that all lights on BITE circuit board are on.

(4) Determine card to be checked and place CARD TEST SELECTOR in proper position.

(5) Place toggle switch in CARD TEST position; BITE IND lamp must come on. If lamp fails to come on, replace card.

NOTE: A valid BITE test of the proximity switch card box and/or proximity logic card box causes a response, in the flight station, of warning lights and aural warnings associated with the tested system.

(6) Repeat Steps (4) and (5) as required, to check additional cards.

CAUTION: ENSURE THAT THE CARD TEST SELECTOR ROTARY SWITCH IS RETURNED TO THE OFF POSITION AFTER COMPLETION OF BITE TESTS. THE SELECTOR SWITCH, WHEN LEFT IN ANY POSITION OTHER THAN OFF, MAY RESULT IN A NON-DESTRUCTIVE MALFUNCTION OF INTERNAL CIRCUITRY.

(7) Place CARD TEST SELECTOR in OFF position.

D. Check Completion

(1) Close covers on switch box and logic box.

(2) Turn off electrical power (Ref. 24-00-00).

4. Aural Warning System Fault Isolation

A. Equipment and Materials

Air Data Tester, Milhard Engineering Co., Part No. 127, or equivalent

Pitot-Static Adapter Kit, Milhard Engineering Co., Part No. 127-1011, or equivalent

NOTE: Air data tester is required only when airspeed simulation is required in testing a portion of the unsafe landing warning system.

5. Fault Isolation/Identification

Proximity Switch System/Aural Warning System Fault Isolation Diagram
Table 101

FIG. NO.	TITLE
101	Component Location Index
102	Component Locator Diagram
103	Aural Warning BITE Test
104	Unsafe Takeoff Condition, No Horn (On Acft 001-031 with SB27-174 and 032-999 See 27-31-00 for elevator drive system)
104A	Unsafe Takeoff Condition, Intermittent Horn
105	Unsafe Landing Configuration, No Horn
106	Aircraft Overspeed Condition, No Clacker
107	Altitude Alert, No Musical C-Chord
108	Autopilot Disengagement, No Wailer
109	Elevator Light Illuminates and Aural Warning Sounds
110	Elevator Light Fails to Illuminate During Aural Warning Test
111	Unsafe Landing Aural Warning During Takeoff with Landing Gear retracting
112	Proximity Swtich System Signal Flow Chart

Proximity Switch System/Aural Warning System Fault Isolation Diagram (Cont)
Table 101

FIG. NO.	TITLE
113	Proximity SW Center Instr Panel Indicator Signals
114	Proximity SW FE/SO Indicator Signals
SCHEM 1	Proximity System Schematic - Air/Ground Sensing
SCHEM 2	Proximity System Schematic - Gear Truck Level
SCHEM 3	Proximity System Schematic - Slat Extend
SCHEM 4	Proximity System Schematic - Thrust Reverser
SCHEM 5	Proximity System Schematic - Tail Skid Indication
SCHEM 6	Proximity System Schematic - Landing Gear and Door Position Indication
SCHEM 7	Proximity System Schematic - Fuselage Doors and RAT Deploy Door
SCHEM 8	Aural Warning System Schematic - Unsafe Takeoff Warning
SCHEM 9	Aural Warning System Schematic - Unsafe Landing Warning

COMPONENT	QTY	AREA/ACCESS	REFERENCE
BOX			
PROXIMITY LOGIC	1	MESC AFT BULKHEAD 252GR-1	31-22-02
PROXIMITY SWITCH CARD	1	MESC AFT BULKHEAD 252GR-1	31-22-01
CIRCUIT BREAKERS			
AVIONICS FLIGHT CONTROL SYSTEM – FCES – CMPTR – AC & L AOA 2200-CB2	1	FLT STA CB1 B5	•
AVIONICS FLIGHT CONTROL SYSTEM – FCES – CMPTR – OC 2210-CB27	1	FLT STA CB1 B4	•
AVIONICS FLIGHT CONTROL SYSTEM – NO. 1 SYSTEM – PITCH AND ROLL 2210-CB1	1	FLT STA CB1 A8	•
AVIONICS FLIGHT CONTROL SYSTEM – NO. 2 SYSTEM – PITCH AND ROLL 2210-CB2	1	FLT STA CB1 A24	•
GEN CONTROL UNITS – STBY INVERTER VOLTAGE 2432-CB21	1	FLT STA CB1 K18	•
INDICATOR T/O AURAL WRNG 3122CB5	1	FLT STA CB2 H7	•
LANDING GEAR PROX SW PWR – NO. 1 3318-CB1	1	FLT STA CB1 L10	•
LANDING GEAR PROX SW PWR – NO. 4 3318-CB5	1	FLT STA CB1 L11	•
LANDING GEAR WARN HORN 3261-CB3	1	FLT STA CB1 L12	•
MISC – ANN RESET 3317-CB12	1	FLT STA CB1 L9	•
MISC – AURAL WARN – MULTI-SOUND 3318-CB4	1	FLT STA CB1 L8	•
MISC – AURAL WARN – OUSP 3318-CB10	1	FLT STA CB1 L7	•
MISC – AURAL WARN – TEST AND RESET 3318-CB9	1	FLT STA CB1 L6	•
NO. 1 NAVIGATION – AIR DATA CMPR 3414-CB1	1	FLT STA CB1 G8	•
NO. 2 NAVIGATION – AIR DATA CMPR 3414-CB2	1	FLT STA CB1 G27	•
26 VAC NAV EXCITATION – ALT ALERT-1 3414-CB12	1	FLT STA CB1 K27	•
26 VAC NAV EXCITATION – ALT ALERT-2 3414-CB11	1	FLT STA CB1 J21	•
26 VAC NAV EXCITATION – CMPTS CPLR 1 3422-CB2	1	FLT STA CB1 K19	•
PROXIMITY SWITCH 2 3318-CB2	1	FLT STA CB3 H3	•
PROXIMITY SWITCH 3 3318-CB3	1	FLT STA CB3 H4	•
COMPUTER – FLIGHT CONTROL ELECTRONIC SYSTEMS	1	FESC CTR RACK 112AB	22-17-01

M1-0000-31-092

R Component Location Index
R Figure 101 (Sheet 1)

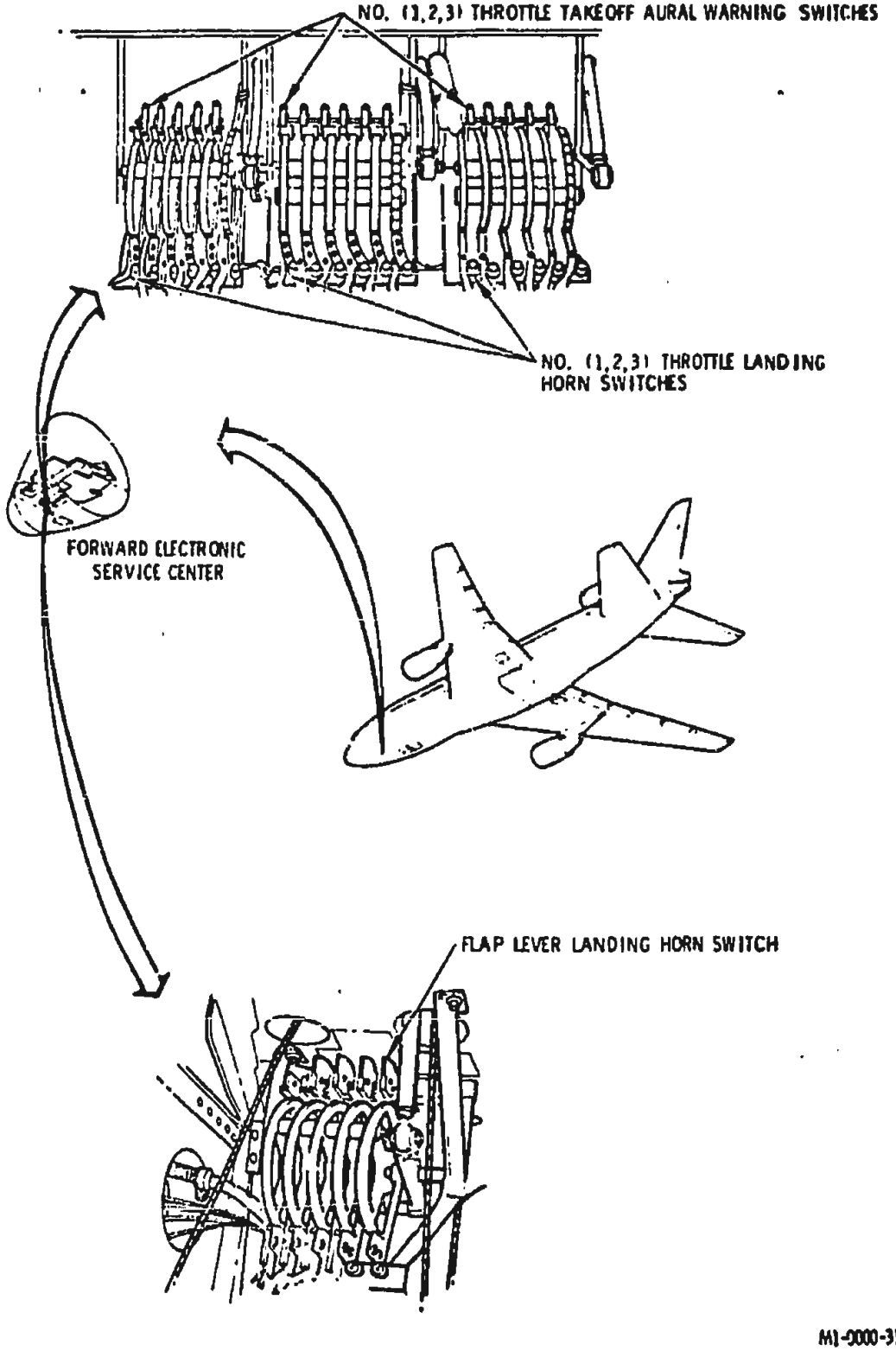
EFFECTIVITY: ALL

001B

COMPONENT	QTY	AREA/ACCESS	REFERENCE
CONTROL – CAPTAINS PITCH TRIM	1	CENTER CONSOLE	27-42-01
PANEL – AURAL WARNING TEST	1	FEISO PANEL/P11	31-22-04
SPEAKER			
MULTISOUND	1	FLT STA	•
OVERSPEED	1	FLT STA	•
SWITCH			
FLAP LEVER LANDING HORN	1	FESC/112AB	31-22-08
GEAR HORN CUTOUT	1	CENTER CONSOLE/P18	31-22-07
NO. 1 THROTTLE LANDING HORN	1	FESC/112AB	31-22-07
NO. 2 THROTTLE LANDING HORN	1	FESC/112AB	31-22-07
NO. 3 THROTTLE LANDING HORN	1	FESC/112AB	31-22-07
NO. 1 THROTTLE TAKEOFF WARNING	1	FESC/112AB	31-22-07
NO. 2 THROTTLE TAKEOFF WARNING	1	FESC/112AB	31-22-07
NO. 3 THROTTLE TAKEOFF WARNING	1	FESC/112AB	31-22-07
SPEEDBRAKE LEVER AURAL WARNING	1	CENTER CONSOLE	31-22-05
SWITCH BOX – FLAP PDU	2	HSC/147AB	27-51-08
UNIT AURAL WARNING	1	FLT STA	37-22-03

M1-0000-31-096

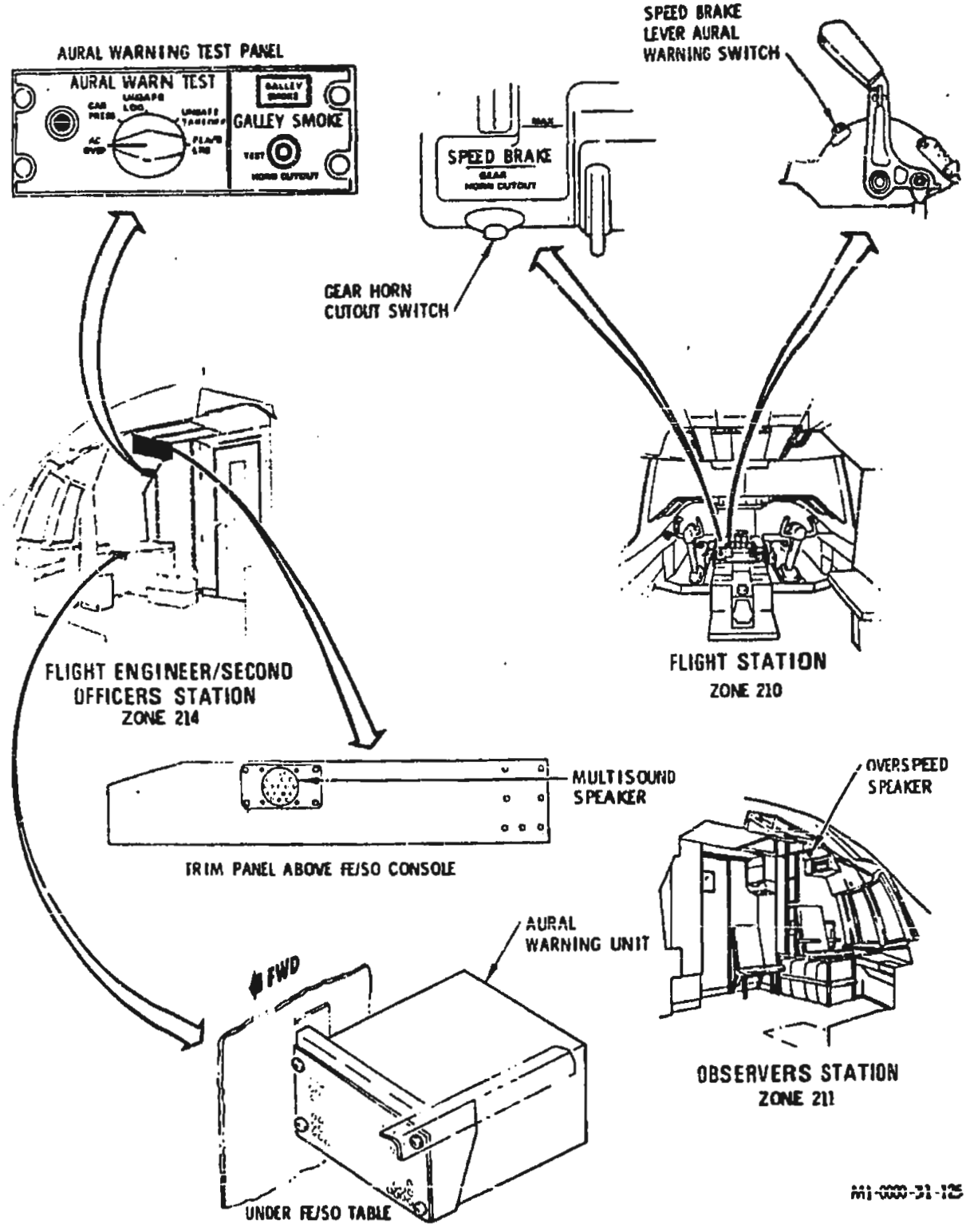
R Component Location Index
R Figure 101 (Sheet 2)


NO. (1,2,3) THROTTLE TAKEOFF AURAL WARNING SWITCHES
NO. (1,2,3) THROTTLE LANDING HORN SWITCHES
FORWARD ELECTRONIC SERVICE CENTER
FLAP LEVER LANDING HORN SWITCH

M1-0000-31-1?7

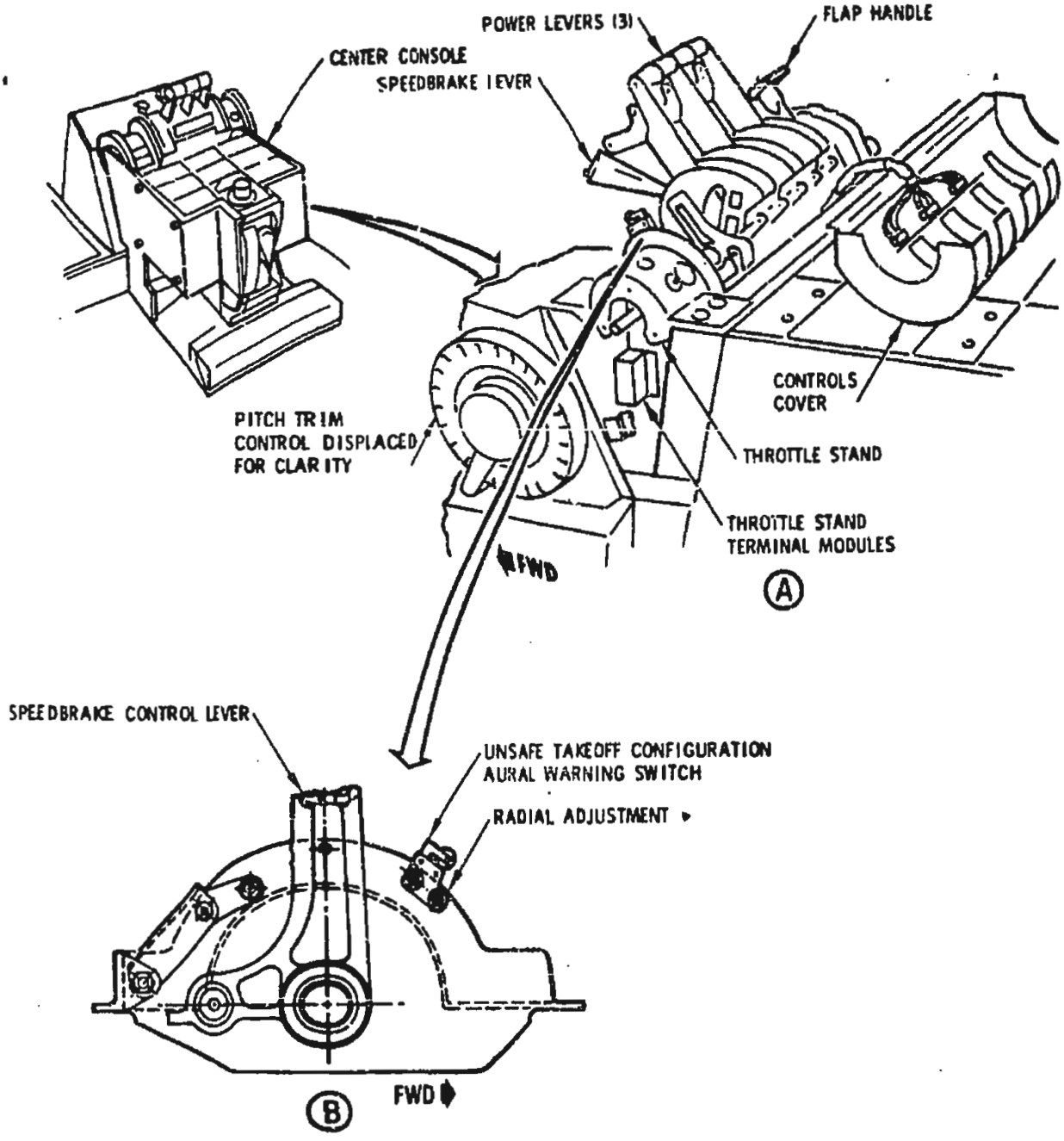
R
R

Component Locator Diagram
Figure 102 (Sheet 1)



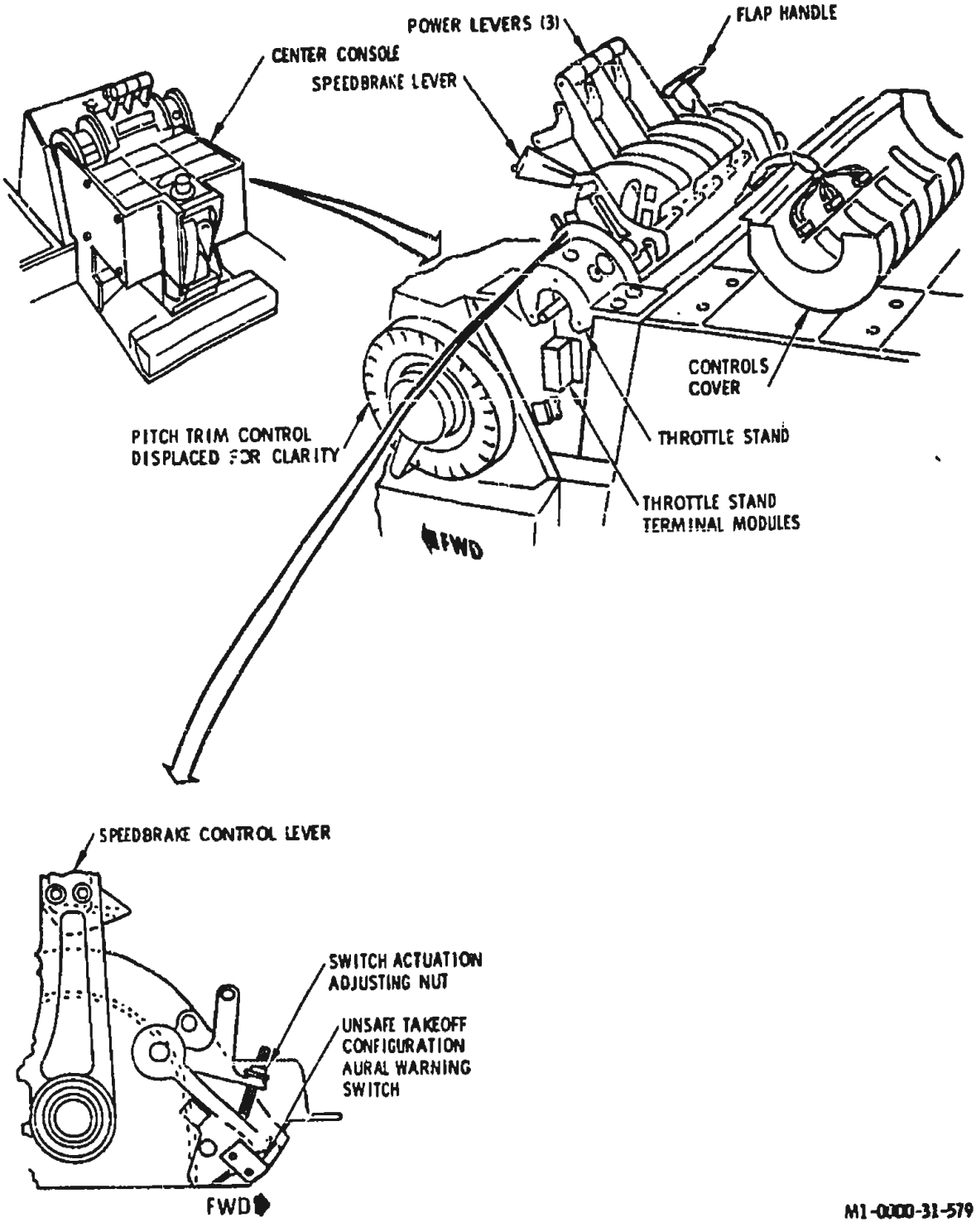
R
R Component Locator Diagram
Figure 102 (Sheet 2)

R EFFECTIVITY: ALL
R
R
001B

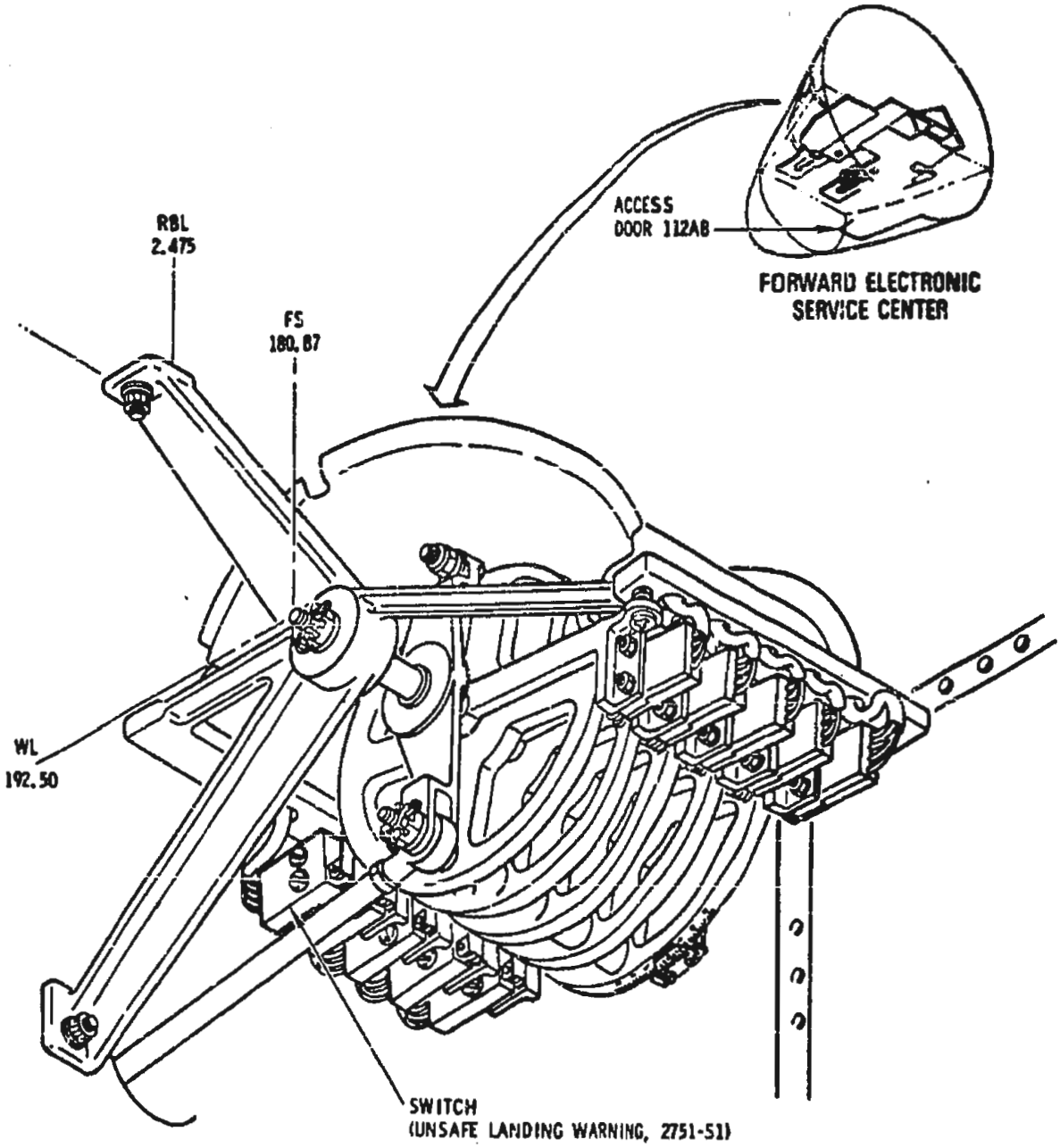


M1-0000-31-578

Component Locator Diagram
Figure 102 (Sheet 3)

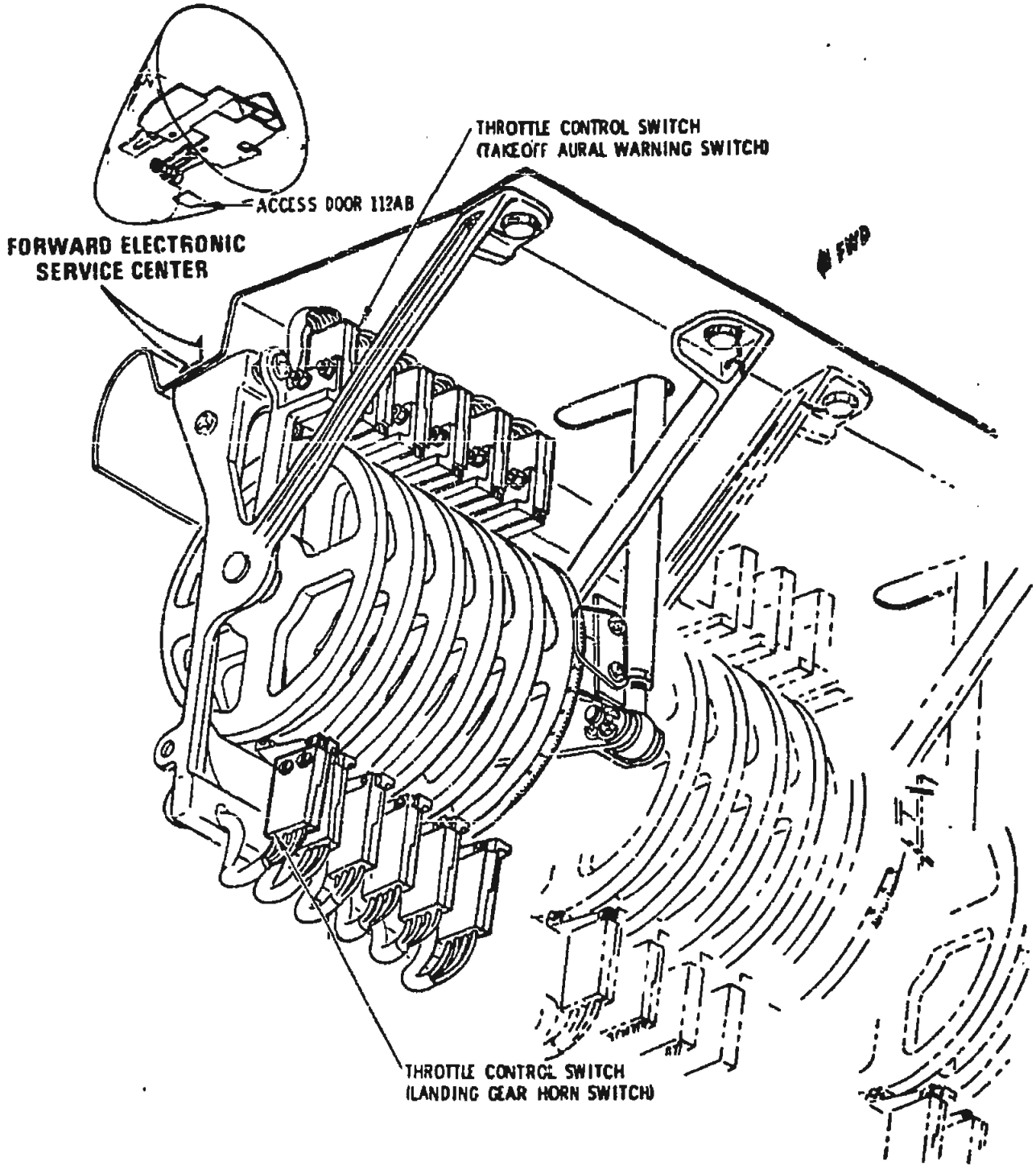


Component Locator Diagram
Figure 102 (Sheet 4)



M1-0000-31-580

Component Locator Diagram
Figure 102 (Sheet 5)



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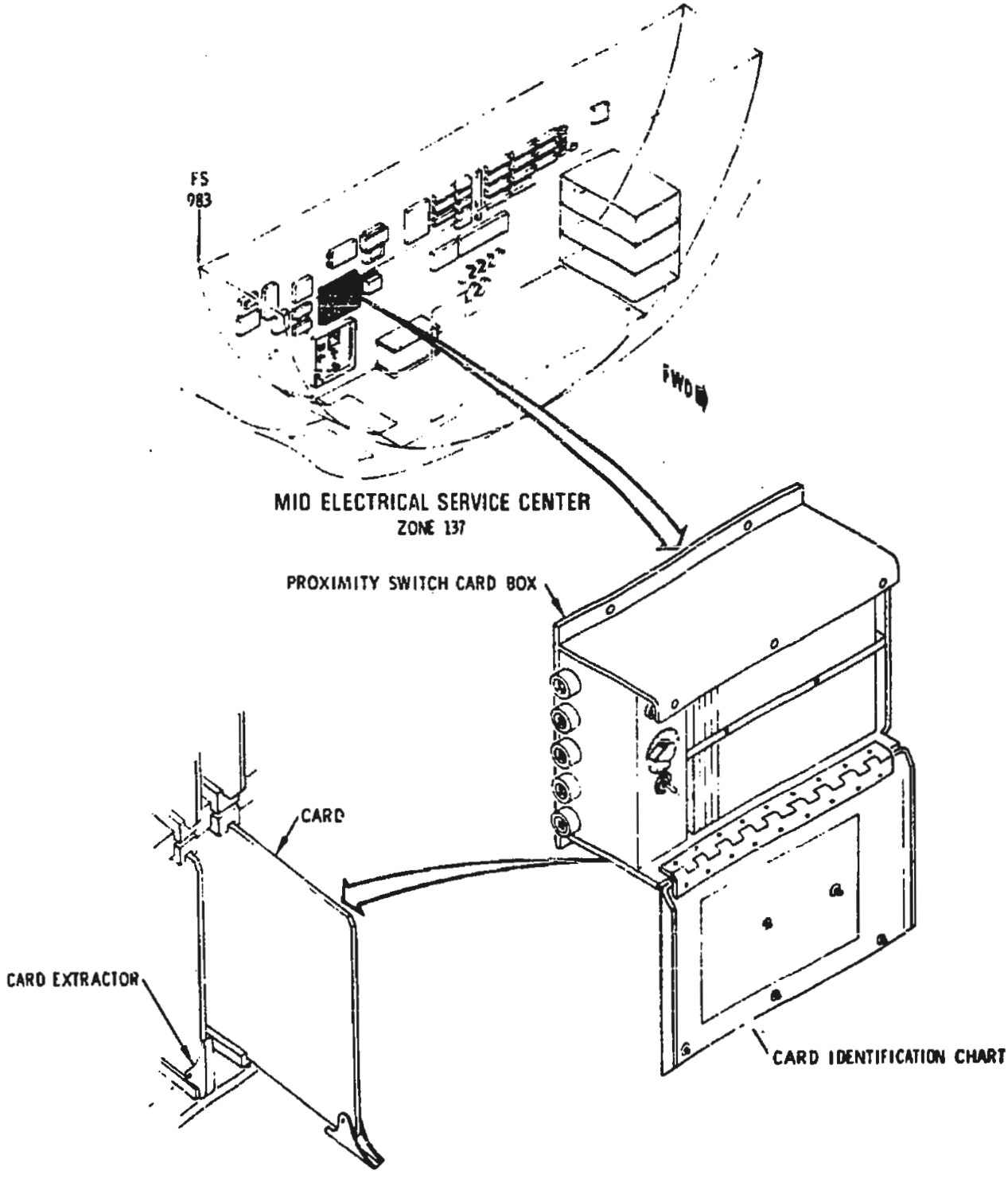
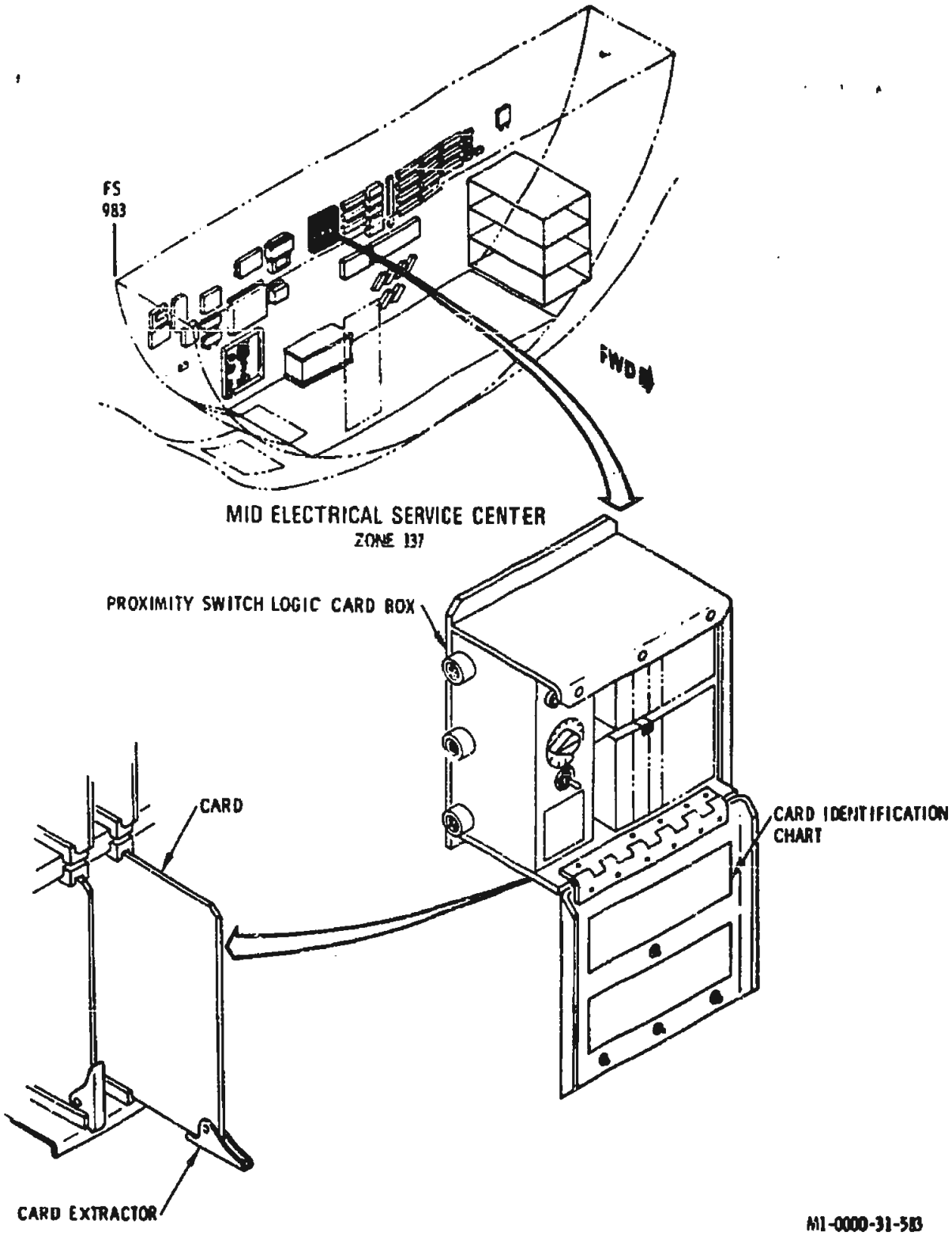
Component Locator Diagram
Figure 102 (Sheet 6)

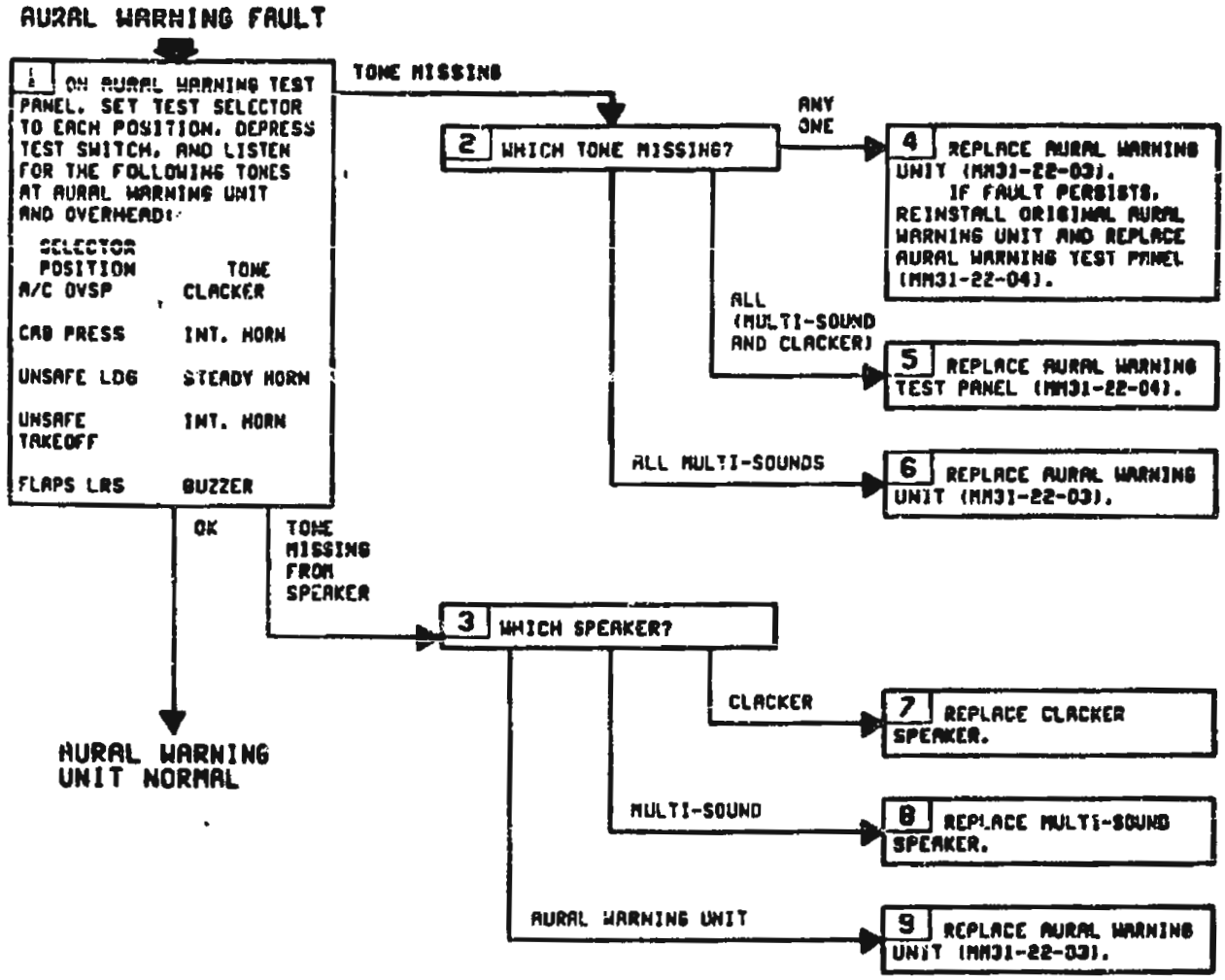


Component Locator Diagram
Figure 102 (Sheet 7)



Component Locator Diagram
Figure 102 (Sheet 8)

PREREQUISITES
ELECTRICAL POWER (MM24-00-00)
COOLING: VERIFY AVIONICS - FWD AND MID
LO FLO LIGHTS ON FE/SO MONITOR PANEL ARE OUT
CB'S: 1L8, 1L7, 1L8


AURAL WARNING FAULT
1 ON AURAL WARNING TEST PANEL, SET TEST SELECTOR TO EACH POSITION, DEPRESS TEST SWITCH, AND LISTEN FOR THE FOLLOWING TONES AT AURAL WARNING UNIT AND OVERHEAD:
SELECTOR POSITION
TONE
A/C OVSP
CLACKER
CAB PRESS
INT. HORN
UNSAFE LDG
STEADY HORN
UNSAFE TAKEOFF
INT. HORN
FLAPS LRS
BUZZER
TONE MISSING
2 WHICH TONE MISSING?
ANY ONE
4 REPLACE AURAL WARNING UNIT (MM31-22-03). IF FAULT PERSISTS, REINSTALL ORIGINAL AURAL WARNING UNIT AND REPLACE AURAL WARNING TEST PANEL (MM31-22-04).
ALL (MULTI-SOUND AND CLACKER)
5 REPLACE AURAL WARNING TEST PANEL (MM31-22-04).
ALL MULTI-SOUNDS
6 REPLACE AURAL WARNING UNIT (MM31-22-03).
OK
TONE MISSING FROM SPEAKER
3 WHICH SPEAKER?
CLACKER
7 REPLACE CLACKER SPEAKER.
MULTI-SOUND
8 REPLACE MULTI-SOUND SPEAKER.
AURAL WARNING UNIT
9 REPLACE AURAL WARNING UNIT (MM31-22-03).
AURAL WARNING UNIT NORMAL

R1-0001-31-117

R
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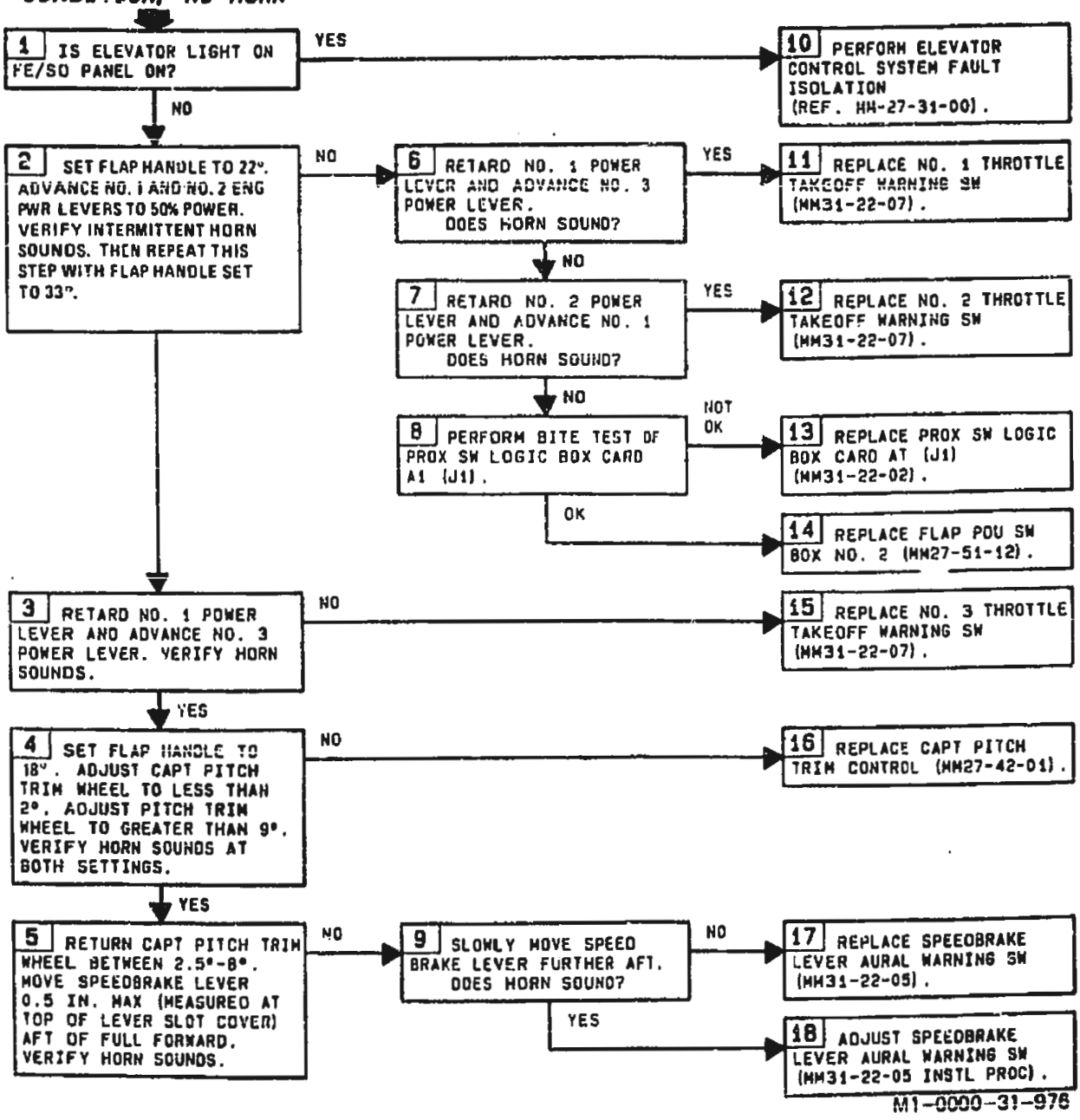
Aural Warning BITE Test
Figure 103

PREREQUISITES

AURAL WARN BITE TEST (FIG. 103)
ELECTRICAL POWER (MM24-00-00)
HYDRO POWER (MM29-11-00)
COOLING: VERIFY AVIONICS - FWD AND MID LO FLO LIGHTS ON FE/SO ECS MONITOR PANEL ARE OUT
CB'S: 1L8, 1L10, 1L11, 2H7, 3H3, 3H4
INITIAL CONDITION: FLAP HANDLE 4° (ON TE FLAPS POS IND VERIFY LE EXT ANNUN LIGHT OUT); CAPT PITCH TRIM WHEEL SET BETWEEN 2.5°-8°; SPEEDBRAKE LEVER FULL FWD; ENG PWR LEVERS IDLE


UNSAFE TAKEOFF CONDITION, NO HORN
1 IS ELEVATOR LIGHT ON FE/SO PANEL ON?
YES
10 PERFORM ELEVATOR CONTROL SYSTEM FAULT ISOLATION (REF. MM-27-31-00).
NO
2 SET FLAP HANDLE TO 22°. ADVANCE NO. 1 AND NO. 2 ENG PWR LEVERS TO 50% POWER. VERIFY INTERMITTENT HORN SOUNDS. THEN REPEAT THIS STEP WITH FLAP HANDLE SET TO 33°.
NO
6 RETARD NO. 1 POWER LEVER AND ADVANCE NO. 3 POWER LEVER. DOES HORN SOUND?
YES
11 REPLACE NO. 1 THROTTLE TAKEOFF WARNING SW (MM31-22-07).
NO
7 RETARD NO. 2 POWER LEVER AND ADVANCE NO. 1 POWER LEVER. DOES HORN SOUND?
YES
12 REPLACE NO. 2 THROTTLE TAKEOFF WARNING SW (MM31-22-07).
NO
8 PERFORM BITE TEST OF PROX SW LOGIC BOX CARD A1 (J1).
NOT OK
13 REPLACE PROX SW LOGIC BOX CARD AT (J1) (MM31-22-02).
OK
14 REPLACE FLAP POU SW BOX NO. 2 (MM27-51-12).
3 RETARD NO. 1 POWER LEVER AND ADVANCE NO. 3 POWER LEVER. VERIFY HORN SOUNDS.
NO
15 REPLACE NO. 3 THROTTLE TAKEOFF WARNING SW (MM31-22-07).
YES
4 SET FLAP HANDLE TO 18°. ADJUST CAPT PITCH TRIM WHEEL TO LESS THAN 2°. ADJUST PITCH TRIM WHEEL TO GREATER THAN 9°. VERIFY HORN SOUNDS AT BOTH SETTINGS.
NO
16 REPLACE CAPT PITCH TRIM CONTROL (MM27-42-01).
YES
5 RETURN CAPT PITCH TRIM WHEEL BETWEEN 2.5°-8°. MOVE SPEEDBRAKE LEVER 0.5 IN. MAX (MEASURED AT TOP OF LEVER SLOT COVER) AFT OF FULL FORWARD. VERIFY HORN SOUNDS.
NO
9 SLOWLY MOVE SPEED BRAKE LEVER FURTHER AFT. DOES HORN SOUND?
NO
17 REPLACE SPEEDBRAKE LEVER AURAL WARNING SW (MM31-22-05).
YES
18 ADJUST SPEEDBRAKE LEVER AURAL WARNING SW (MM31-22-05 INSTL PROC).
M1-0000-31-976

CR Unsafe Takeoff Condition, No Horn
CR Figure 104

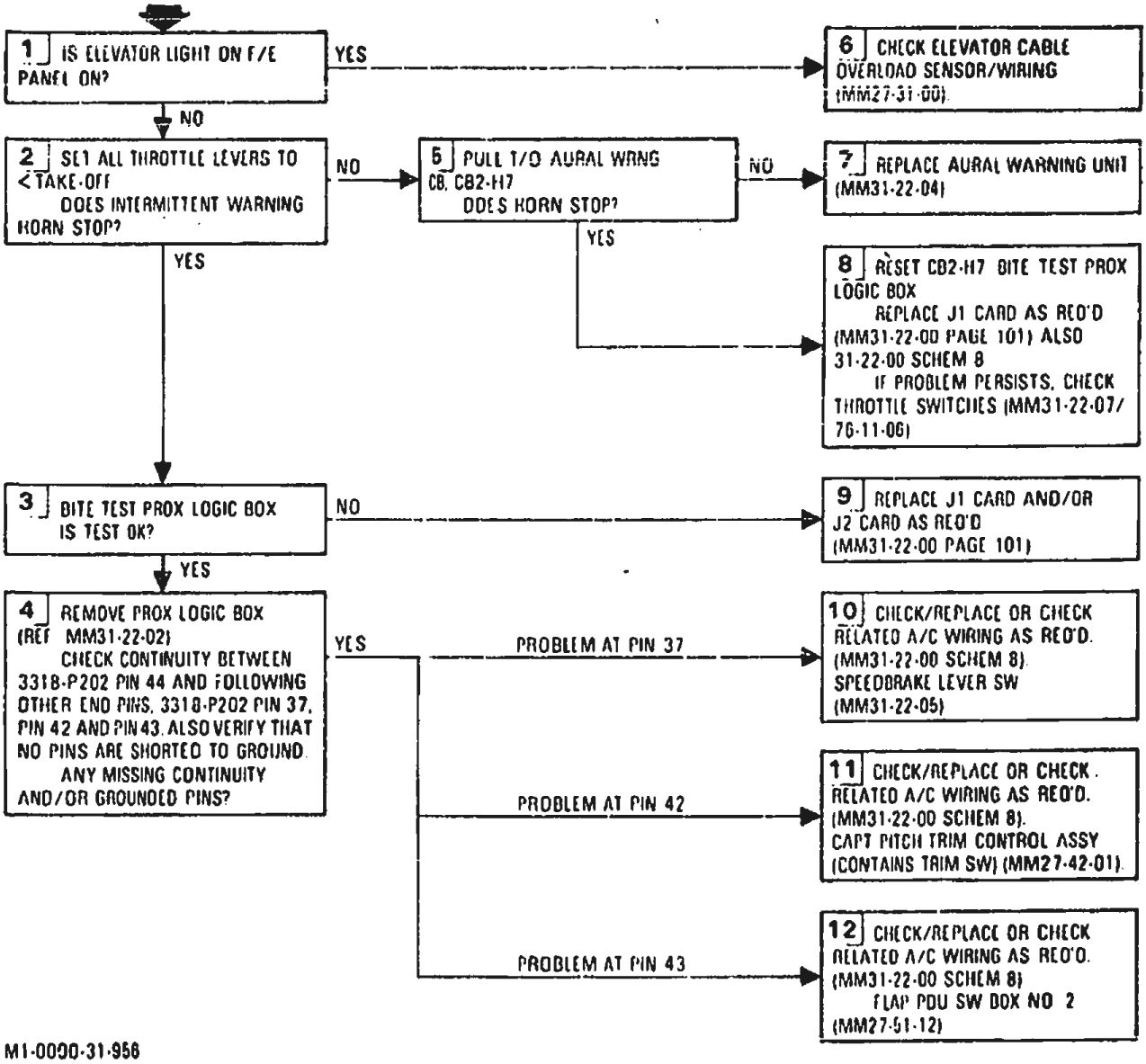
EFFECTIVITY: ALL

001B

PREREQUISITES

AURAL WARN BITE TEST (FIG. 103)
ELECTRICAL POWER (MM24-00-00)
HYDRO POWER (MM29-11-00)
COOLING: VERIFY AVIONICS - FWD AND MID LO FLO LIGHTS ON
FE/SO ECS MONITOR PANEL ARE OUT.
CB'S, 1L8, 1L10, 1L11, 2H7, 3H3, 3H4
INITIAL CONDITION. FLAP HANDLE 4° (ON TE FLAPS POS IND)
VERIFY LE EXT ANNUN LIGHT ON.
CAPT PITCH TRIM WHEEL SET BETWEEN 2.5°-8°.
SPEEDBRAKE LEVER FULL FWD. ENG PWR LEVERS IDLE.

UNSAFE TAKE-OFF AURAL WARNING SOUNDS


1 IS ELEVATOR LIGHT ON F/E PANEL ON?
YES
6 CHECK ELEVATOR CABLE OVERLOAD SENSOR/WIRING (MM27-31-00)
NO
2 SET ALL THROTTLE LEVERS TO <TAKE-OFF
DOES INTERMITTENT WARNING HORN STOP?
NO
5 PULL T/O AURAL WRNG CB, C82-H7
DOES HORN STOP?
NO
7 REPLACE AURAL WARNING UNIT (MM31-22-04)
YES
8 RESET CB2-H7 BITE TEST PROX LOGIC BOX
REPLACE J1 CARD AS REQ'D (MM31-22-00 PAGE 101) ALSO 31-22-00 SCHEM 8
IF PROBLEM PERSISTS, CHECK THROTTLE SWITCHES (MM31-22-07/ 76-11-06)
YES
3 BITE TEST PROX LOGIC BOX IS TEST OK?
NO
9 REPLACE J1 CARD AND/OR J2 CARD AS REQ'D (MM31-22-00 PAGE 101)
YES
4 REMOVE PROX LOGIC BOX (REF MM31-22-02)
CHECK CONTINUITY BETWEEN 3318-P202 PIN 44 AND FOLLOWING OTHER END PINS, 3318-P202 PIN 37, PIN 42 AND PIN 43. ALSO VERIFY THAT NO PINS ARE SHORTED TO GROUND.
ANY MISSING CONTINUITY AND/OR GROUNDED PINS?
YES
PROBLEM AT PIN 37
10 CHECK/REPLACE OR CHECK RELATED A/C WIRING AS REQ'D. (MM31-22-00 SCHEM 8)
SPEEDBRAKE LEVER SW (MM31-22-05)
PROBLEM AT PIN 42
11 CHECK/REPLACE OR CHECK RELATED A/C WIRING AS REQ'D. (MM31-22-00 SCHEM 8).
CAPT PITCH TRIM CONTROL ASSY (CONTAINS TRIM SW) (MM27-42-01).
PROBLEM AT PIN 43
12 CHECK/REPLACE OR CHECK RELATED A/C WIRING AS REQ'D. (MM31-22-00 SCHEM 8)
FLAP PDU SW BOX NO 2 (MM27-51-12)

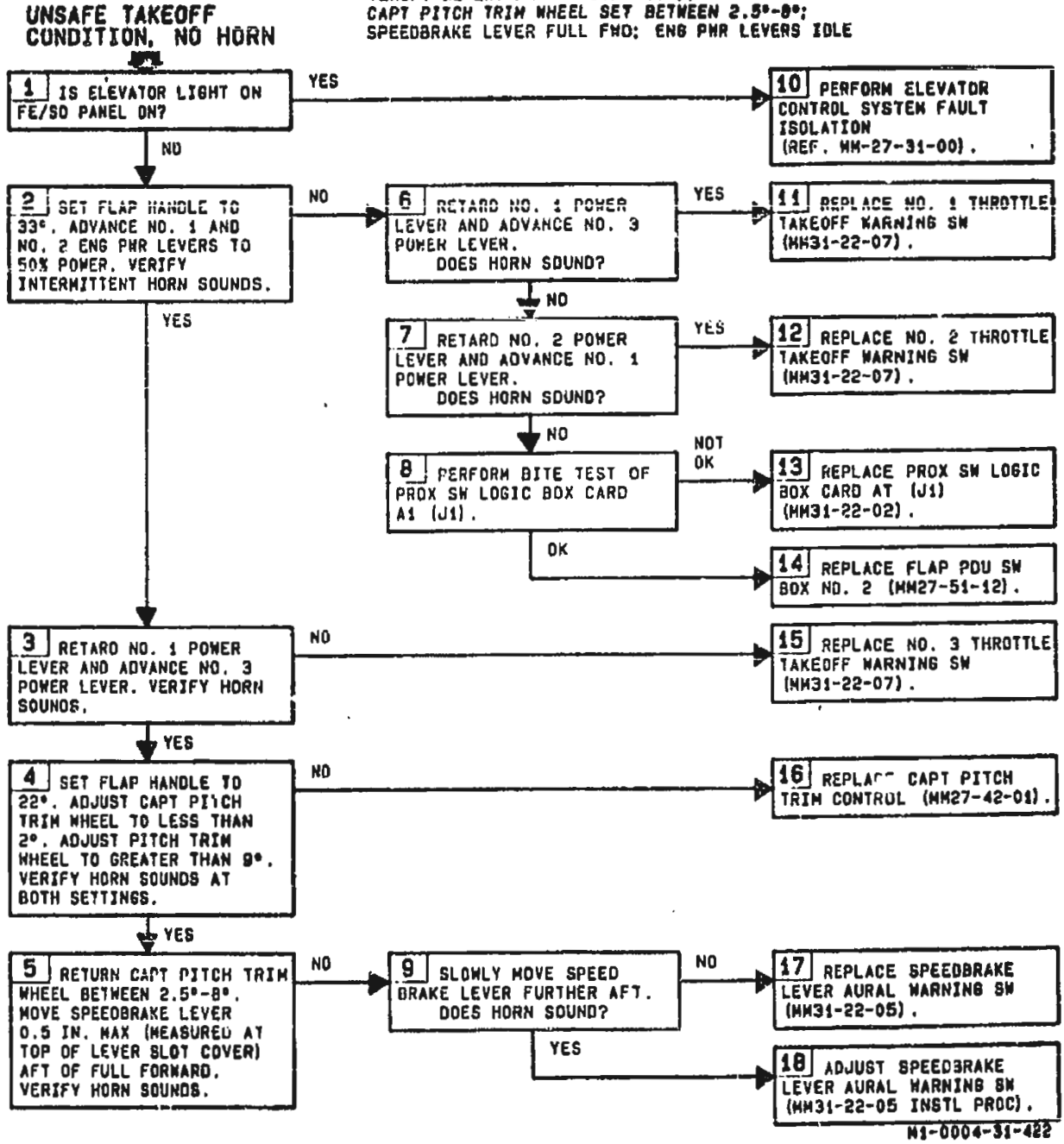
M1-0000-31-956

R Unsafe Takeoff Condition, Intermittent Horn
R Figure 104A

EFFECTIVITY: ALL

001B

PREREQUISITES
AURAL WARN BITE TEST (FIG. 103)
ELECTRICAL POWER (MM24-00-00)
HYDRO POWER (MM29-11-00)
COOLING: VERIFY AVIONICS - FWD AND MID LO FLO LIGHTS ON FE/SO ECS MONITOR PANEL ARE OUT
CB'S: 1L8, 1L10, 1L11, 2H7, 3H3, 3H4
INITIAL CONDITION: FLAP HANDLE 4° (ON TE FLAPS POS IND VERIFY LE EXT ANNUN LIGHT OUT); CAPT PITCH TRIM WHEEL SET BETWEEN 2.5°-8°; SPEEDBRAKE LEVER FULL FWD; ENG PWR LEVERS IDLE


UNSAFE TAKEOFF CONDITION, NO HORN
1 IS ELEVATOR LIGHT ON FE/SO PANEL ON?
YES
10 PERFORM ELEVATOR CONTROL SYSTEM FAULT ISOLATION (REF. MM-27-31-00).
NO
2 SET FLAP HANDLE TO 33°. ADVANCE NO. 1 AND NO. 2 ENG PWR LEVERS TO 50% POWER. VERIFY INTERMITTENT HORN SOUNDS.
NO
6 RETARD NO. 1 POWER LEVER AND ADVANCE NO. 3 POWER LEVER. DOES HORN SOUND?
YES
11 REPLACE NO. 1 THROTTLE TAKEOFF WARNING SW (MM31-22-07).
NO
7 RETARD NO. 2 POWER LEVER AND ADVANCE NO. 1 POWER LEVER. DOES HORN SOUND?
YES
12 REPLACE NO. 2 THROTTLE TAKEOFF WARNING SW (MM31-22-07).
NO
8 PERFORM BITE TEST OF PROX SW LOGIC BOX CARD A1 (J1).
NOT OK
13 REPLACE PROX SW LOGIC BOX CARD AT (J1) (MM31-22-02).
OK
14 REPLACE FLAP PDU SW BOX NO. 2 (MM27-51-12).
YES
3 RETARD NO. 1 POWER LEVER AND ADVANCE NO. 3 POWER LEVER. VERIFY HORN SOUNDS.
NO
15 REPLACE NO. 3 THROTTLE TAKEOFF WARNING SW (MM31-22-07).
YES
4 SET FLAP HANDLE TO 22°. ADJUST CAPT PITCH TRIM WHEEL TO LESS THAN 2°. ADJUST PITCH TRIM WHEEL TO GREATER THAN 9°. VERIFY HORN SOUNDS AT BOTH SETTINGS.
NO
16 REPLACE CAPT PITCH TRIM CONTROL (MM27-42-01).
YES
5 RETURN CAPT PITCH TRIM WHEEL BETWEEN 2.5°-8°. MOVE SPEEDBRAKE LEVER 0.5 IN. MAX (MEASURED AT TOP OF LEVER SLOT COVER) AFT OF FULL FORWARD. VERIFY HORN SOUNDS.
NO
9 SLOWLY MOVE SPEED BRAKE LEVER FURTHER AFT. DOES HORN SOUND?
NO
17 REPLACE SPEEDBRAKE LEVER AURAL WARNING SW (MM31-22-05).
YES
18 ADJUST SPEEDBRAKE LEVER AURAL WARNING SW (MM31-22-05 INSTL PROC).
M1-0004-31-422

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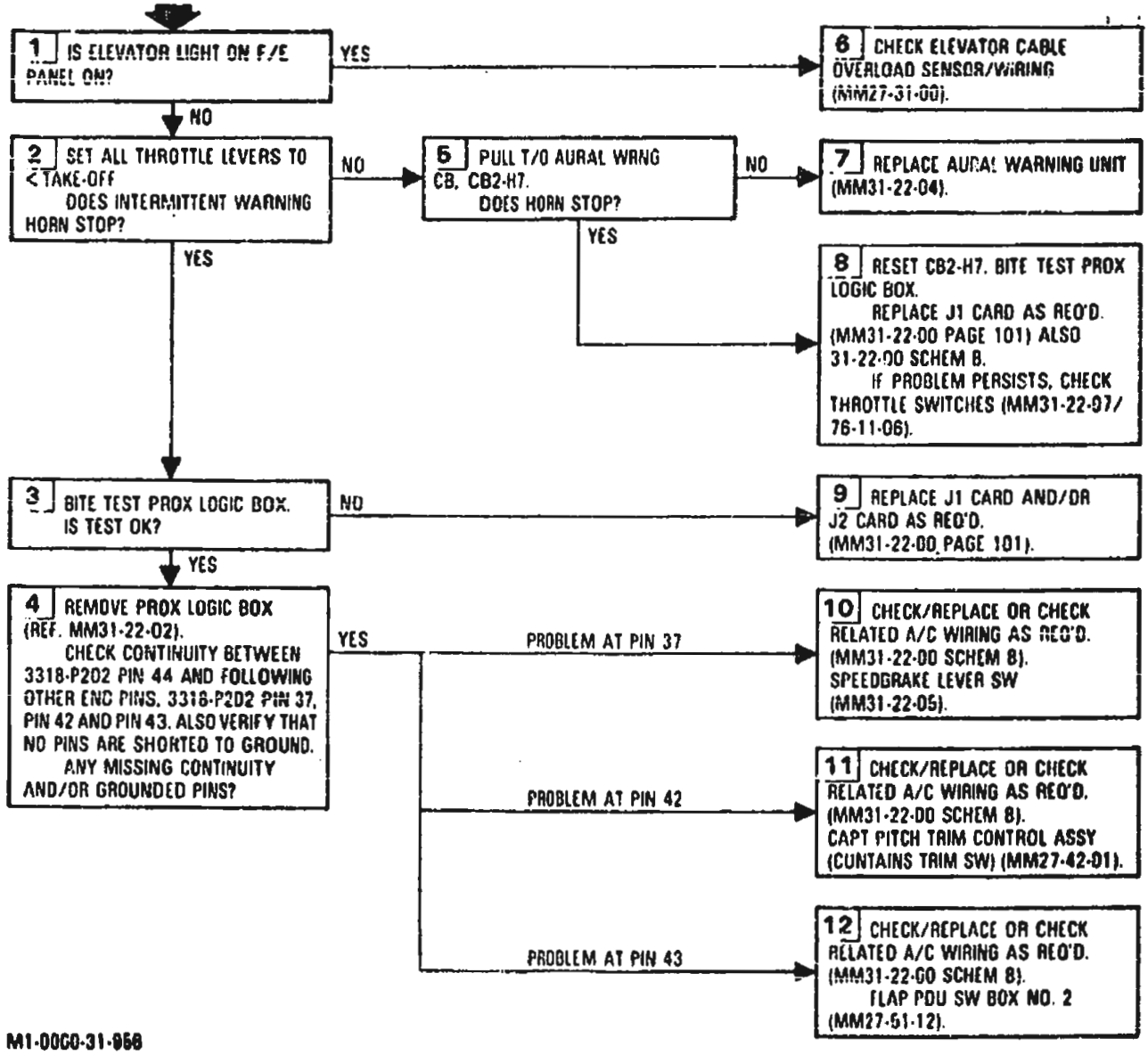
Unsafe Takeoff Condition, No Horn
Figure 104

PREREQUISITES

AURAL WARN BITE TEST (FIG. 103)
ELECTRICAL POWER (MM24-00-00)
HYDRO POWER (MM29-11-00)
COOLING: VERIFY AVIONICS - FWD AND MID LO FLO LIGHTS ON
FE/SO ECS MONITOR PANEL ARE OUT.
CB'S: 1LB, 1L10, 1L11, 2H7, 3H3, 3H4
INITIAL CONDITION: FLAP HANDLE 4° (ON TE FLAPS POS IND).
VERIFY LE EXT ANNUN LIGHT ON;
CAPT PITCH TRIM WHEEL SET BETWEEN 2.5°-0°;
SPEEDBRAKE LEVER FULL FWD; ENG PWR LEVERS IDLE.

UNSAFE TAKE-OFF AURAL WARNING SOUNDS


1 IS ELEVATOR LIGHT ON F/E PANEL ON?
YES
6 CHECK ELEVATOR CABLE OVERLOAD SENSOR/WIRING (MM27-31-00).
NO
2 SET ALL THROTTLE LEVERS TO <TAKE-OFF
DOES INTERMITTENT WARNING HORN STOP?
NO
5 PULL T/O AURAL WRNG CB, CB2-H7.
DOES HORN STOP?
NO
7 REPLACE AURAL WARNING UNIT (MM31-22-04).
YES
8 RESET CB2-H7. BITE TEST PROX LOGIC BOX.
REPLACE J1 CARD AS REQ'D. (MM31-22-00 PAGE 101) ALSO 31-22-00 SCHEM B.
IF PROBLEM PERSISTS, CHECK THROTTLE SWITCHES (MM31-22-07/ 76-11-06).
YES
3 BITE TEST PROX LOGIC BOX.
IS TEST OK?
NO
9 REPLACE J1 CARD AND/OR J2 CARD AS REQ'D. (MM31-22-00 PAGE 101).
YES
4 REMOVE PROX LOGIC BOX (REF. MM31-22-02).
CHECK CONTINUITY BETWEEN 3318-P202 PIN 44 AND FOLLOWING OTHER END PINS, 3318-P202 PIN 37, PIN 42 AND PIN 43. ALSO VERIFY THAT NO PINS ARE SHORTED TO GROUND.
ANY MISSING CONTINUITY AND/OR GROUNDED PINS?
YES
PROBLEM AT PIN 37
10 CHECK/REPLACE OR CHECK RELATED A/C WIRING AS REQ'D. (MM31-22-00 SCHEM 8). SPEEDBRAKE LEVER SW (MM31-22-05).
PROBLEM AT PIN 42
11 CHECK/REPLACE OR CHECK RELATED A/C WIRING AS REQ'D. (MM31-22-00 SCHEM 8). CAPT PITCH TRIM CONTROL ASSY (CONTAINS TRIM SW) (MM27-42-01).
PROBLEM AT PIN 43
12 CHECK/REPLACE OR CHECK RELATED A/C WIRING AS REQ'D. (MM31-22-00 SCHEM 8). FLAP PDU SW BOX NO. 2 (MM27-51-12).

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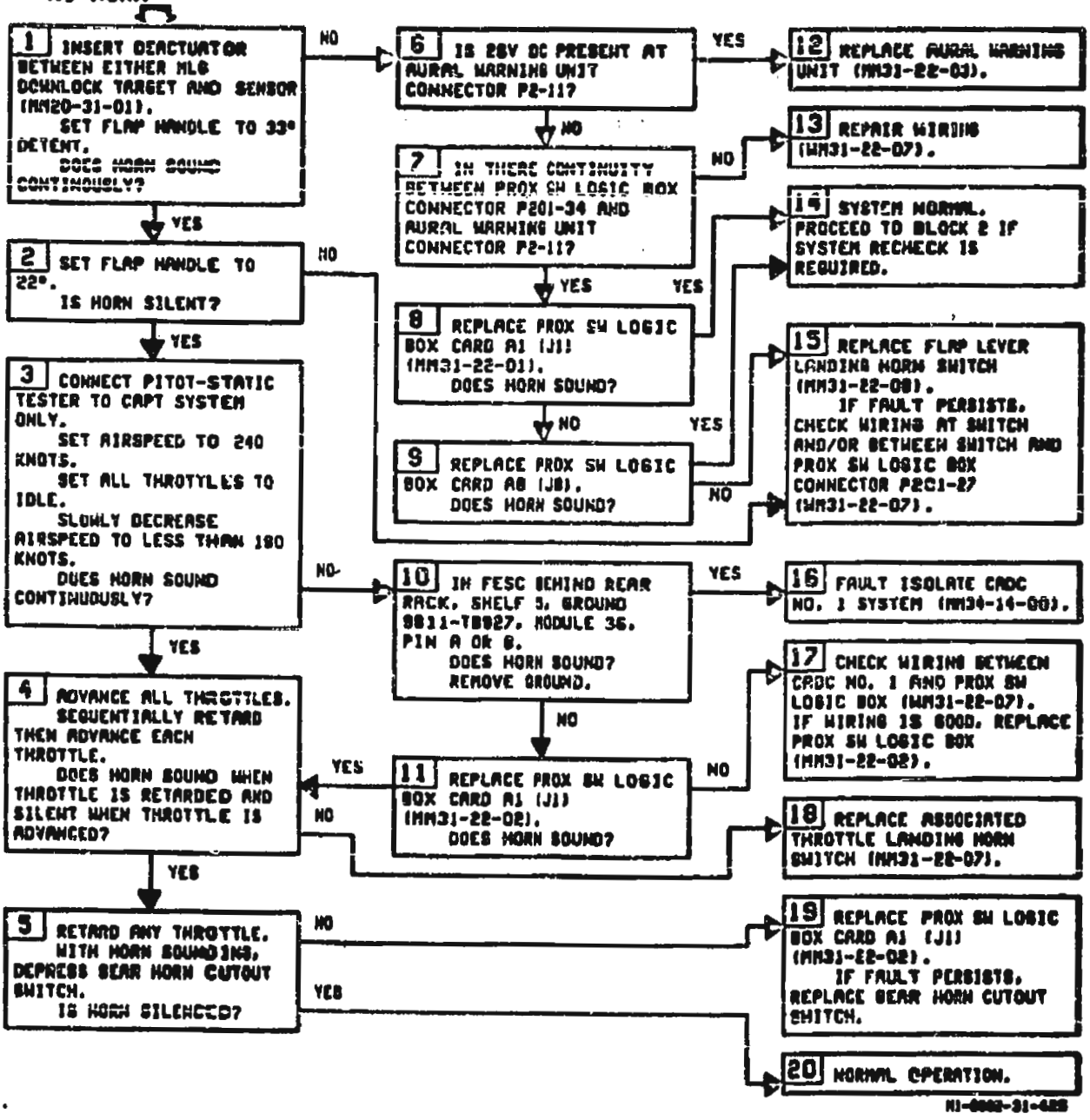
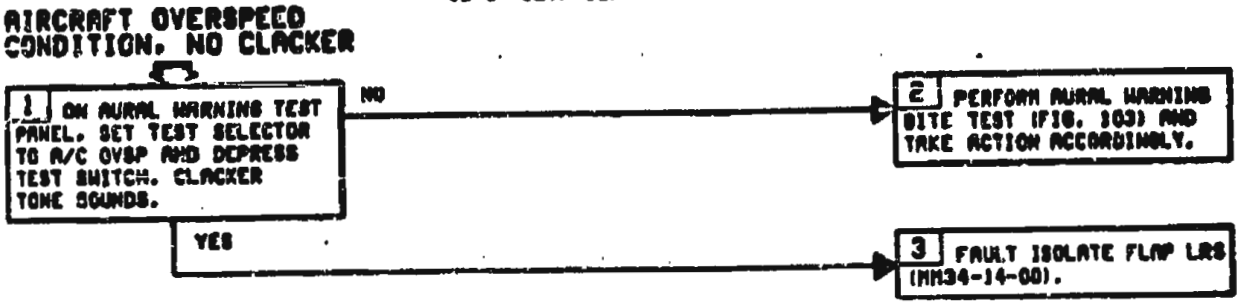
R Unsafe Takeoff Condition, Intermittent Horn
R Figure 104A

PREREQUISITES
AURAL WARN BITE TEST (FIG. 103)
ELECTRICAL POWER (MM24-00-00)
HYDRO POWER: OFF
COOLING: VERIFY AVIONICS - FWD AND MID AND INB COOLING LO FLO LIGHTS ON FE/SO ECS MONITOR PANEL ARE OUT
CB'S: IN: 1C9, 1D7, 1L8, 1L10, 1L11, 1L12, 2H9, 2H4
OUT: 1L3 (RAT AUTO DEPLOY)
LANDING GEAR LEVER: DOWN
ALL LANDING GEARS: SAFETY PINS IN
FLAP HANDLE: ZERO DETENT


UNSAFE LANDING CONFIGURATION. NO HORN
1 INSERT DEACTUATOR BETWEEN EITHER MLG DOWNLOCK TARGET AND SENSOR (MM20-31-01). SET FLAP HANDLE TO 33° DETENT. DOES HORN SOUND CONTINUOUSLY?
NO
YES
2 SET FLAP HANDLE TO 22°. IS HORN SILENT?
NO
YES
3 CONNECT PITOT-STATIC TESTER TO CAPT SYSTEM ONLY. SET AIRSPEED TO 240 KNOTS. SET ALL THROTTLES TO IDLE. SLOWLY DECREASE AIRSPEED TO LESS THAN 180 KNOTS. DOES HORN SOUND CONTINUOUSLY?
NO
YES
4 ADVANCE ALL THROTTLES. SEQUENTIALLY RETARD THEN ADVANCE EACH THROTTLE. DOES HORN SOUND WHEN THROTTLE IS RETARDED AND SILENT WHEN THROTTLE IS ADVANCED?
YES
NO
YES
5 RETARD ANY THROTTLE. WITH HORN SOUNDING, DEPRESS GEAR HORN CUTOUT SWITCH. IS HORN SILENCED?
NO
YES
6 IS 28V DC PRESENT AT AURAL WARNING UNIT CONNECTOR P2-11?
YES
NO
7 IS THERE CONTINUITY BETWEEN PROX SW LOGIC BOX CONNECTOR P201-34 AND AURAL WARNING UNIT CONNECTOR P2-11?
NO
YES
8 REPLACE PROX SW LOGIC BOX CARD A1 (J1) (MM31-22-01). DOES HORN SOUND?
YES
NO
9 REPLACE PROX SW LOGIC BOX CARD A8 (J8). DOES HORN SOUND?
YES
NO
10 IN FESC BEHIND REAR RACK, SHELF 5, GROUND 9811-TB927, MODULE 36, PIN A OR B. DOES HORN SOUND? REMOVE GROUND.
YES
NO
11 REPLACE PROX SW LOGIC BOX CARD A1 (J1) (MM31-22-02). DOES HORN SOUND?
YES
NO
12 REPLACE AURAL WARNING UNIT (MM31-22-03).
13 REPAIR WIRING (MM31-22-07).
14 SYSTEM NORMAL. PROCEED TO BLOCK 2 IF SYSTEM RECHECK IS REQUIRED.
15 REPLACE FLAP LEVER LANDING HORN SWITCH (MM31-22-08). IF FAULT PERSISTS, CHECK WIRING AT SWITCH AND/OR BETWEEN SWITCH AND PROX SW LOGIC BOX CONNECTOR P2C1-27 (MM31-22-07).
16 FAULT ISOLATE CADC NO. 1 SYSTEM (MM34-14-00).
17 CHECK WIRING BETWEEN CADC NO. 1 AND PROX SW LOGIC BOX (MM31-22-07). IF WIRING IS GOOD, REPLACE PROX SW LOGIC BOX (MM31-22-02).
18 REPLACE ASSOCIATED THROTTLE LANDING HORN SWITCH (MM31-22-07).
19 REPLACE PROX SW LOGIC BOX CARD A1 (J1) (MM31-22-02). IF FAULT PERSISTS, REPLACE GEAR HORN CUTOUT SWITCH.
20 NORMAL OPERATION.

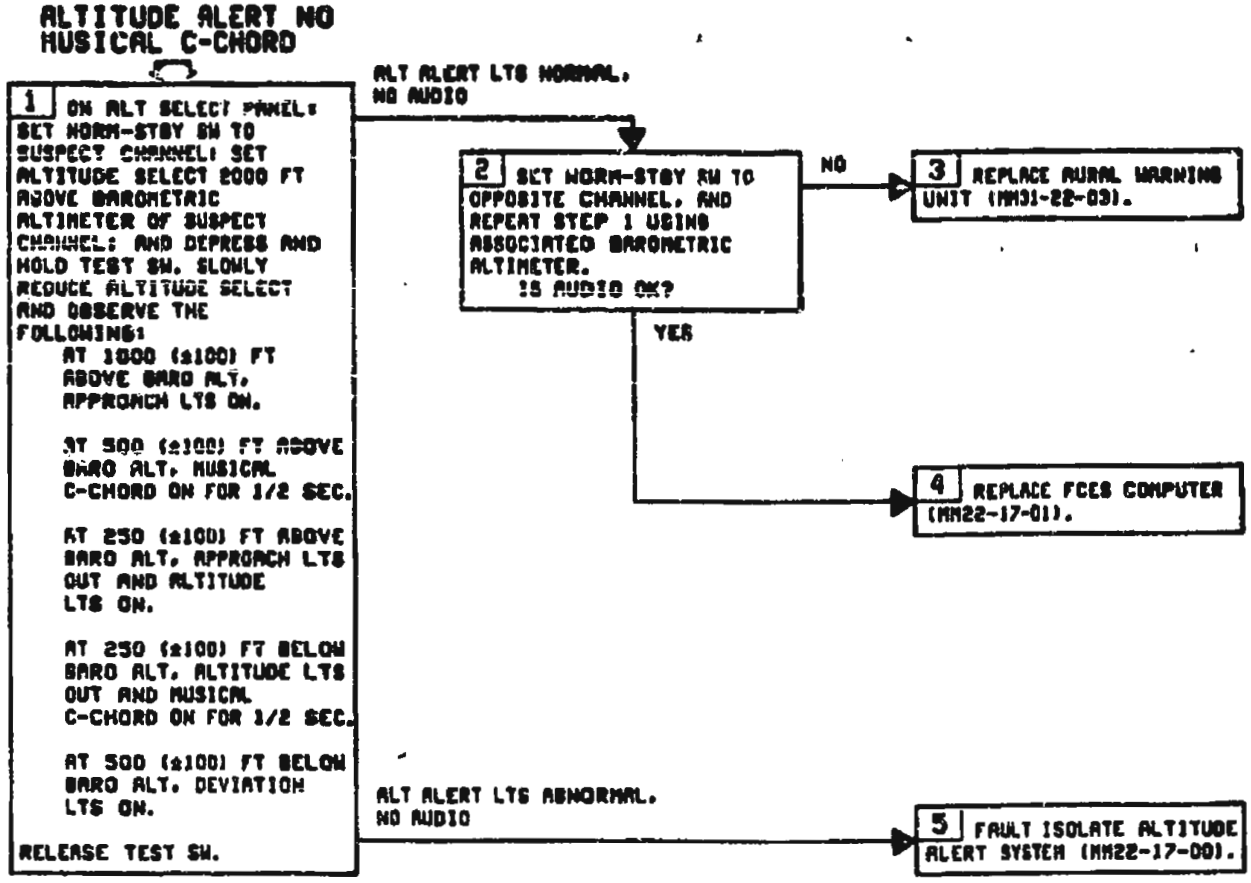
Unsafe Landing Configuration, No Horn
Figure 105

PREREQUISITES
ELECTRICAL POWER (MM24-00-00)
COOLING: VERIFY AVIONICS - FWD AND MID LG FLG LIGHTS ON FE/SO ECS MONITOR PANEL ARE OUT
CB'S: 1L8, 1L7


AIRCRAFT OVERSPEED CONDITION, NO CLACKER
1 ON AURAL WARNING TEST PANEL, SET TEST SELECTOR TO A/C OVSP AND DEPRESS TEST SWITCH. CLACKER TONE SOUNDS.
NO
2 PERFORM AURAL WARNING BITE TEST (FIG. 103) AND TAKE ACTION ACCORDINGLY.
YES
3 FAULT ISOLATE FLAP LRS (MM34-14-00).

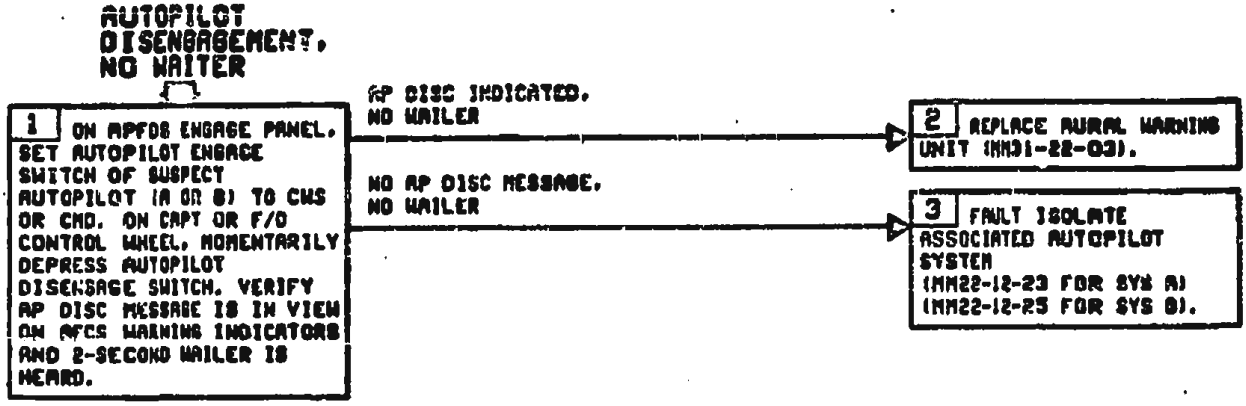
Aircraft Overspeed Condition, No Clacker
Figure 106

PREREQUISITES
ELECTRICAL POWER (MM24-00-00)
COOLING: VERIFY AVIONICS - FWD AND MID
LO FLO LIGHTS ON FE/SO ECS MONITOR PANEL ARE OUT
CB'S: 184, 185, 188, 1B87, 1J21, 1K27, JL8


ALTITUDE ALERT NO MUSICAL C-CHORD
1 ON ALT SELECT PANEL: SET NORM-STBY SW TO SUSPECT CHANNEL; SET ALTITUDE SELECT 2000 FT ABOVE BAROMETRIC ALTIMETER OF SUSPECT CHANNEL; AND DEPRESS AND HOLD TEST SW. SLOWLY REDUCE ALTITUDE SELECT AND OBSERVE THE FOLLOWING:
AT 1000 (±100) FT ABOVE BARO ALT, APPROACH LTS ON.
AT 500 (±100) FT ABOVE BARO ALT, MUSICAL C-CHORD ON FOR 1/2 SEC.
AT 250 (±100) FT ABOVE BARO ALT, APPROACH LTS OUT AND ALTITUDE LTS ON.
AT 250 (±100) FT BELOW BARO ALT, ALTITUDE LTS OUT AND MUSICAL C-CHORD ON FOR 1/2 SEC.
AT 500 (±100) FT BELOW BARO ALT, DEVIATION LTS ON.
RELEASE TEST SW.
ALT ALERT LTS NORMAL, NO AUDIO
2 SET NORM-STBY SW TO OPPOSITE CHANNEL, AND REPEAT STEP 1 USING ASSOCIATED BAROMETRIC ALTIMETER. IS AUDIO OK?
NO
3 REPLACE AURAL WARNING UNIT (MM31-22-03).
YES
4 REPLACE FCES COMPUTER (MM22-17-01).
ALT ALERT LTS ABNORMAL, NO AUDIO
5 FAULT ISOLATE ALTITUDE ALERT SYSTEM (MM22-17-00).

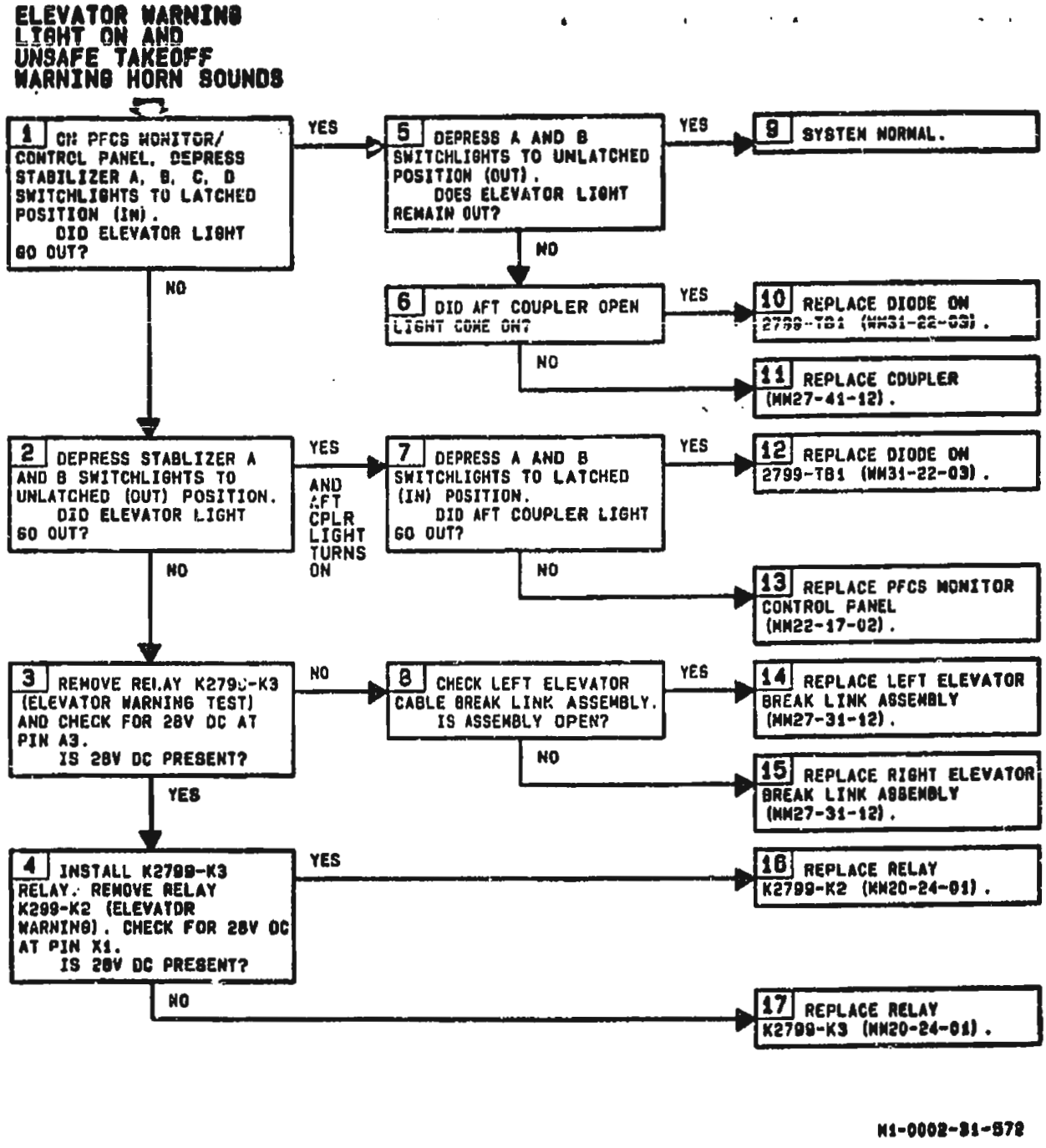
Altitude Alert, No Musical C-Chord
Figure 107

PREREQUISITES
ELECTRICAL POWER (MM24-00-00)
COOLING: VERIFY AVIONICS - FWD AND MID LO FLO LIGHTS ON FE/SO ECS MONITOR PANEL ARE OUT
CB'S: 1A8, 1A24, 1L8, 1K18, 2K18


AUTOPILOT DISENGAGEMENT, NO WAITER
1 ON MPFDS ENGAGE PANEL, SET AUTOPILOT ENGAGE SWITCH OF SUSPECT AUTOPILOT (A OR B) TO CWS OR CMD. ON CAPT OR F/O CONTROL WHEEL, MOMENTARILY DEPRESS AUTOPILOT DISENGAGE SWITCH. VERIFY AP DISC MESSAGE IS IN VIEW ON AFCS WARNING INDICATORS AND 2-SECOND WAITER IS HEARD.
AP DISC INDICATED, NO WAITER
NO AP DISC MESSAGE, NO WAITER
2 REPLACE AURAL WARNING UNIT (MM31-22-03).
3 FAULT ISOLATE ASSOCIATED AUTOPILOT SYSTEM (MM22-12-23 FOR SYS A) (MM22-12-25 FOR SYS B).

Autopilot Disengagement, No Wailer
Figure 108

PREREQUISITES
ELECTRICAL POWER (MM24-41-00)
CB'S: CB1-B8, L8
CB2-H7
CHECK FOR ELEVATOR JAM AND AFT DRIVE QUADRANT BEARING FAILURE

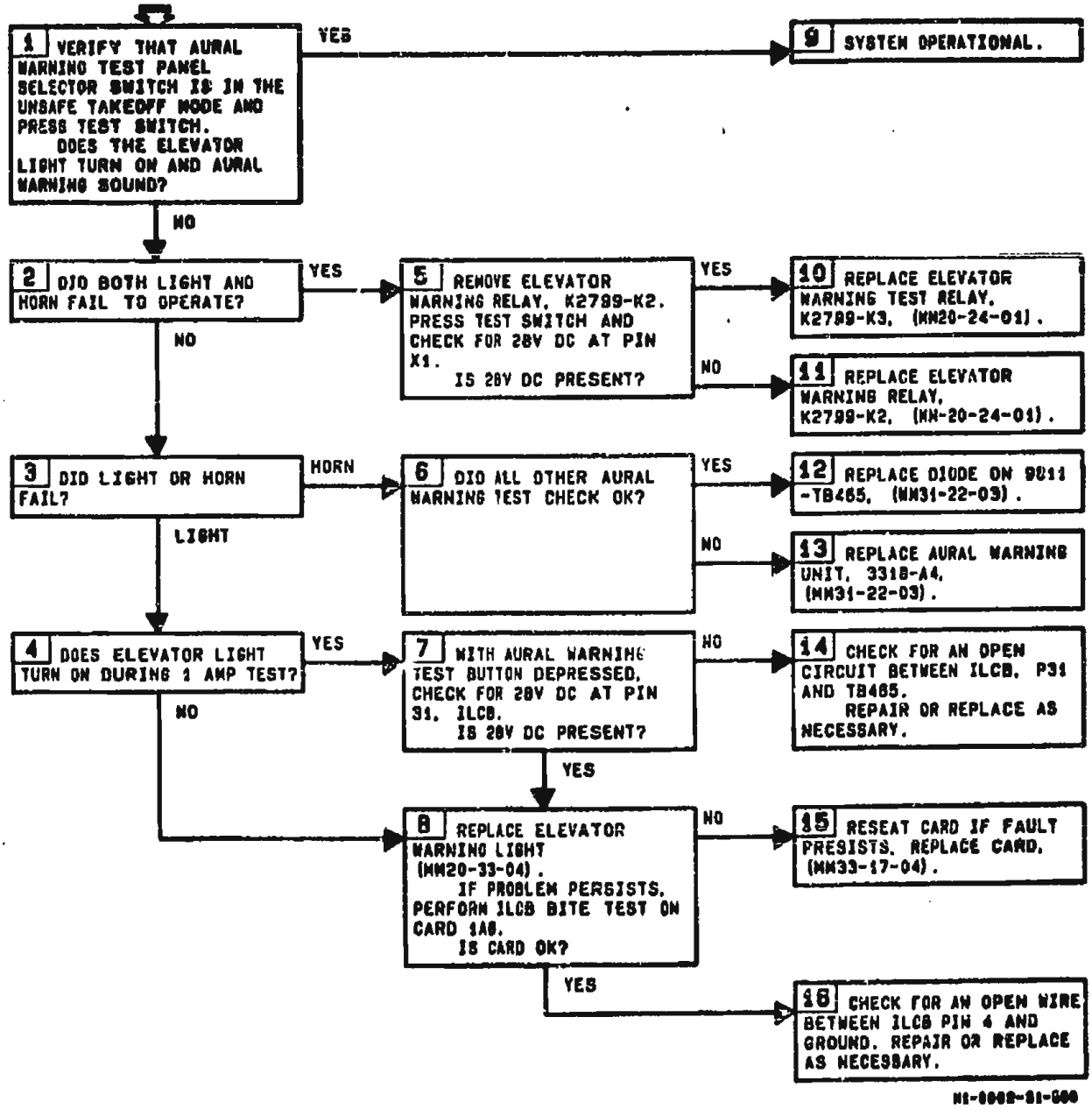

ELEVATOR WARNING LIGHT ON AND UNSAFE TAKEOFF WARNING HORN SOUNDS
1 ON PFCS MONITOR/ CONTROL PANEL, DEPRESS STABILIZER A, B, C, D SWITCHLIGHTS TO LATCHED POSITION (IN). DID ELEVATOR LIGHT GO OUT?
YES
5 DEPRESS A AND B SWITCHLIGHTS TO UNLATCHED POSITION (OUT). DOES ELEVATOR LIGHT REMAIN OUT?
YES
9 SYSTEM NORMAL.
NO
6 DID AFT COUPLER OPEN LIGHT COME ON?
YES
10 REPLACE DIODE ON 2799-TB1 (MM31-22-03).
NO
11 REPLACE COUPLER (MM27-41-12).
NO
2 DEPRESS STABLIZER A AND B SWITCHLIGHTS TO UNLATCHED (OUT) POSITION. DID ELEVATOR LIGHT GO OUT?
YES
AND AFT CPLR LIGHT TURNS ON
7 DEPRESS A AND B SWITCHLIGHTS TO LATCHED (IN) POSITION. DID AFT COUPLER LIGHT GO OUT?
YES
12 REPLACE DIODE ON 2799-TB1 (MM31-22-03).
NO
13 REPLACE PFCS MONITOR CONTROL PANEL (MM22-17-02).
NO
3 REMOVE RELAY K2799-K3 (ELEVATOR WARNING TEST) AND CHECK FOR 28V DC AT PIN A3. IS 28V DC PRESENT?
NO
8 CHECK LEFT ELEVATOR CABLE BREAK LINK ASSEMBLY. IS ASSEMBLY OPEN?
YES
14 REPLACE LEFT ELEVATOR BREAK LINK ASSEMBLY (MM27-31-12).
NO
15 REPLACE RIGHT ELEVATOR BREAK LINK ASSEMBLY (MM27-31-12).
YES
4 INSTALL K2799-K3 RELAY. REMOVE RELAY K299-K2 (ELEVATOR WARNING). CHECK FOR 28V DC AT PIN X1. IS 28V DC PRESENT?
YES
16 REPLACE RELAY K2799-K2 (MM20-24-01).
NO
17 REPLACE RELAY K2799-K3 (MM20-24-01).

M1-0002-31-572

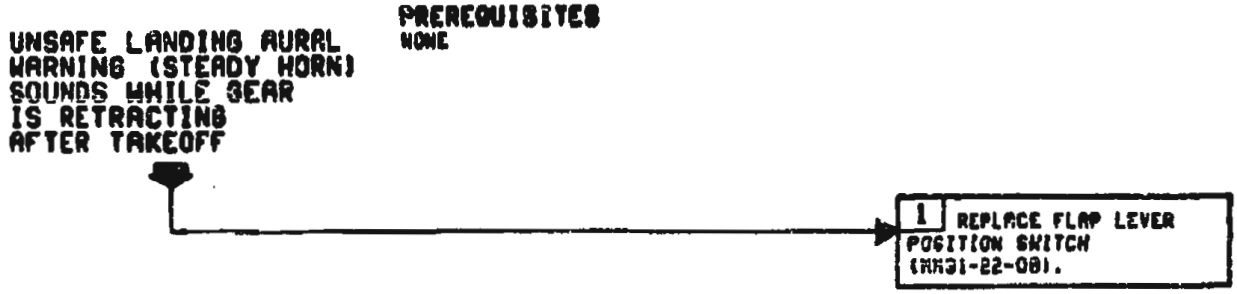
Elevator Light Illuminates and Aural Warning Sounds
Figure 109

ELEVATOR WARNING LIGHT ON FLIGHT ENGINEER/SECOND OFFICER ANNUNCIATOR PANEL DOES NOT ILLUMINATE OR WHEN TESTHORN DOES NOT SOUND

PREREQUISITES
ELECTRICAL POWER (MM24-41-00)
CB'S: CB1-L8, L9 CB2-H7
SET ALL THROTTLE LEVERS TO MINIMUM POSITION
ENSURE NOSE GEAR STEERING RELAY NO. 2, 2817-K2, IS IN THE GROUND POSITION

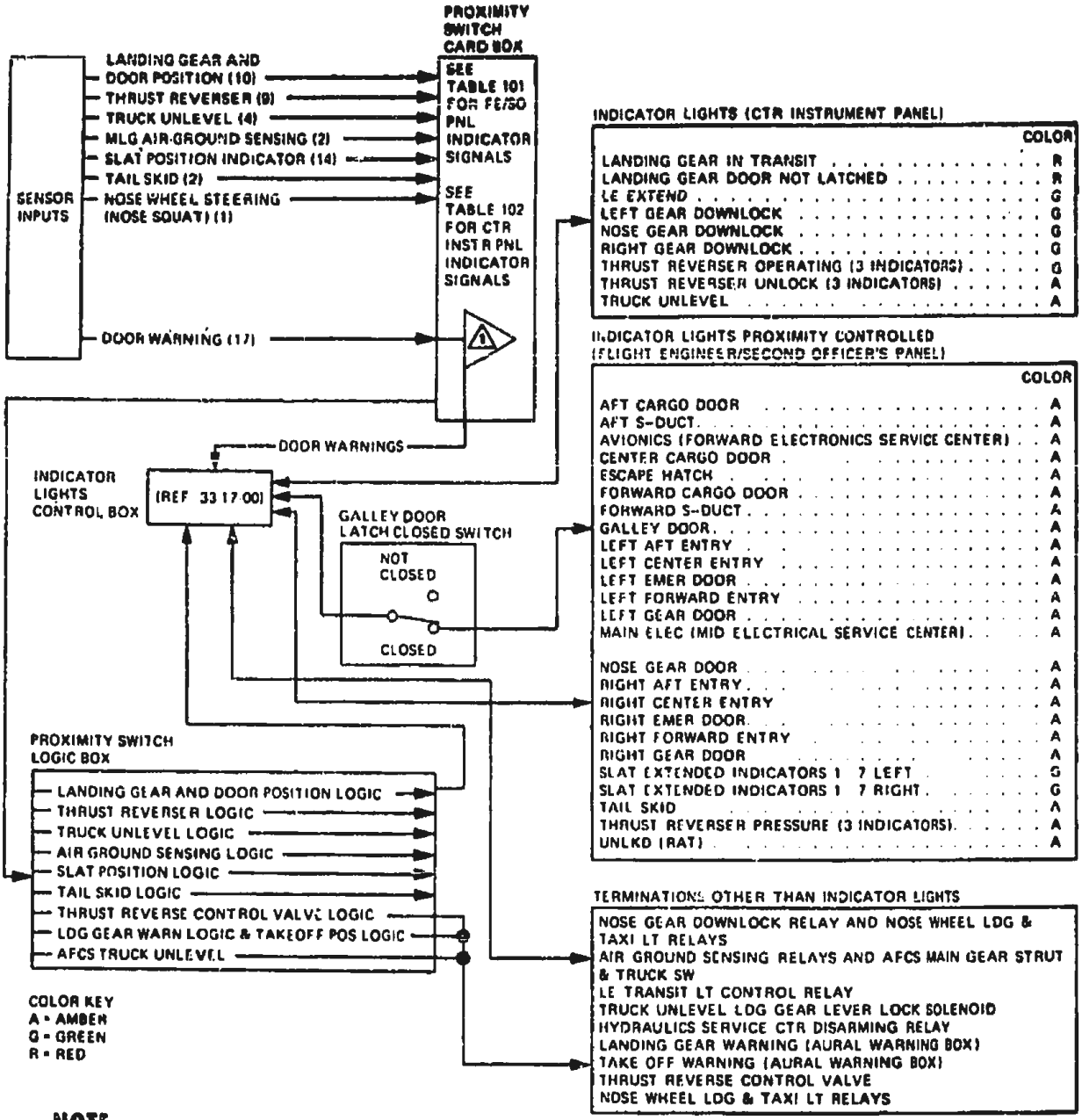

1 VERIFY THAT AURAL WARNING TEST PANEL SELECTOR SWITCH IS IN THE UNSAFE TAKEOFF MODE AND PRESS TEST SWITCH.
DOES THE ELEVATOR LIGHT TURN ON AND AURAL WARNING SOUND?
YES
9 SYSTEM OPERATIONAL.
NO
2 DID BOTH LIGHT AND HORN FAIL TO OPERATE?
YES
5 REMOVE ELEVATOR WARNING RELAY, K2799-K2. PRESS TEST SWITCH AND CHECK FOR 28V DC AT PIN X1.
IS 28V DC PRESENT?
YES
10 REPLACE ELEVATOR WARNING TEST RELAY, K2799-K3, (MM20-24-01).
NO
11 REPLACE ELEVATOR WARNING RELAY, K2799-K2, (MM-20-24-01).
NO
3 DID LIGHT OR HORN FAIL?
HORN
6 DID ALL OTHER AURAL WARNING TEST CHECK OK?
YES
12 REPLACE DIODE ON 9011 -TB465, (MM31-22-03).
NO
13 REPLACE AURAL WARNING UNIT, 3318-A4, (MM31-22-03).
LIGHT
4 DOES ELEVATOR LIGHT TURN ON DURING 1 AMP TEST?
YES
7 WITH AURAL WARNING TEST BUTTON DEPRESSED, CHECK FOR 28V DC AT PIN 31, ILCB.
IS 28V DC PRESENT?
NO
14 CHECK FOR AN OPEN CIRCUIT BETWEEN ILCB, P31 AND TB465.
REPAIR OR REPLACE AS NECESSARY.
NO
YES
8 REPLACE ELEVATOR WARNING LIGHT (MM20-33-04).
IF PROBLEM PERSISTS, PERFORM ILCB BITE TEST ON CARD 1A8.
IS CARD OK?
NO
15 RESEAT CARD IF FAULT PRESISTS. REPLACE CARD, (MM33-17-04).
YES
16 CHECK FOR AN OPEN WIRE BETWEEN ILCB PIN 4 AND GROUND. REPAIR OR REPLACE AS NECESSARY.

Elevator Light Fails to Illuminate During Aural Warning Test
Figure 110


PREREQUISITES
NONE
UNSAFE LANDING AURAL WARNING (STEADY HORN) SOUNDS WHILE GEAR IS RETRACTING AFTER TAKEOFF
1 REPLACE FLAP LEVER POSITION SWITCH (AM31-22-08).

M1-0000-31-700

Unsafe Landing Aural Warning During Takeoff With Landing Gear Retracting
Figure 111


PROXIMITY SWITCH CARD BOX
SENSOR INPUTS
LANDING GEAR AND DOOR POSITION (10)
THRUST REVERSER (9)
TRUCK UNLEVEL (4)
MLG AIR-GROUND SENSING (2)
SLAT POSITION INDICATOR (14)
TAIL SKID (2)
NOSE WHEEL STEERING (NOSE SQUAT) (1)
SEE TABLE 101 FOR FE/SO PNL INDICATOR SIGNALS
SEE TABLE 102 FOR CTR INSTR PNL INDICATOR SIGNALS
DOOR WARNING (17)
1
DOOR WARNINGS
INDICATOR LIGHTS CONTROL BOX
(REF 33 17 00)
GALLEY DOOR LATCH CLOSED SWITCH
NOT CLOSED
CLOSED
PROXIMITY SWITCH LOGIC BOX
LANDING GEAR AND DOOR POSITION LOGIC
THRUST REVERSER LOGIC
TRUCK UNLEVEL LOGIC
AIR GROUND SENSING LOGIC
SLAT POSITION LOGIC
TAIL SKID LOGIC
THRUST REVERSE CONTROL VALVE LOGIC
LDG GEAR WARN LOGIC & TAKEOFF POS LOGIC
AFCS TRUCK UNLEVEL
COLOR KEY
A = AMBER
G = GREEN
R = RED
INDICATOR LIGHTS (CTR INSTRUMENT PANEL)
COLOR
LANDING GEAR IN TRANSIT . . . R
LANDING GEAR DOOR NOT LATCHED . . . R
LE EXTEND . . . G
LEFT GEAR DOWNLOCK . . . G
NOSE GEAR DOWNLOCK . . . G
RIGHT GEAR DOWNLOCK . . . G
THRUST REVERSER OPERATING (3 INDICATORS) . . . G
THRUST REVERSER UNLOCK (3 INDICATORS) . . . A
TRUCK UNLEVEL . . . A
INDICATOR LIGHTS PROXIMITY CONTROLLED (FLIGHT ENGINEER/SECOND OFFICER'S PANEL)
COLOR
AFT CARGO DOOR . . . A
AFT S-DUCT . . . A
AVIONICS (FORWARD ELECTRONICS SERVICE CENTER) . . . A
CENTER CARGO DOOR . . . A
ESCAPE HATCH . . . A
FORWARD CARGO DOOR . . . A
FORWARD S-DUCT . . . A
GALLEY DOOR . . . A
LEFT AFT ENTRY . . . A
LEFT CENTER ENTRY . . . A
LEFT EMER DOOR . . . A
LEFT FORWARD ENTRY . . . A
LEFT GEAR DOOR . . . A
MAIN ELEC (MID ELECTRICAL SERVICE CENTER) . . . A
NOSE GEAR DOOR . . . A
RIGHT AFT ENTRY . . . A
RIGHT CENTER ENTRY . . . A
RIGHT EMER DOOR . . . A
RIGHT FORWARD ENTRY . . . A
RIGHT GEAR DOOR . . . A
SLAT EXTENDED INDICATORS 1 7 LEFT . . . G
SLAT EXTENDED INDICATORS 1 7 RIGHT . . . G
TAIL SKID . . . A
THRUST REVERSER PRESSURE (3 INDICATORS) . . . A
UNLKD (RAT) . . . A
TERMINATIONS OTHER THAN INDICATOR LIGHTS
NOSE GEAR DOWNLOCK RELAY AND NOSE WHEEL LDG & TAXI LT RELAYS
AIR GROUND SENSING RELAYS AND AFCS MAIN GEAR STRUT & TRUCK SW
LE TRANSIT LT CONTROL RELAY
TRUCK UNLEVEL LDG GEAR LEVER LOCK SOLENOID
HYDRAULICS SERVICE CTR DISARMING RELAY
LANDING GEAR WARNING (AURAL WARNING BOX)
TAKE OFF WARNING (AURAL WARNING BOX)
THRUST REVERSE CONTROL VALVE
NOSE WHEEL LDG & TAXI LT RELAYS

NOTE

1. ALL DOOR WARNING SIGNALS ARE AMPLIFIED BY LAMP DRIVERS IN THE PROXIMITY SWITCH CARD BOX AND ROUTED DIRECTLY TO THE INDICATOR LIGHTS CONTROL BOX, BYPASSING THE LOGIC BOX
2. ALL SIGNALS NOT AMPLIFIED BY LAMP DRIVERS IN THE PROXIMITY SWITCH CARD BOX ARE ROUTED TO THE LOGIC BOX

MI-0002-31-200

Proximity Switch System Signal Flow Chart
Figure 112

INDICATOR OR LOAD	ILCS CARDS	LOGIC BOX CARDS	SW BOX CARDS DRVR	SW CARD LOGIC VOLTS	SW BOX CARDS SW	TARGET POSITION	SENSOR WIRES BLU TO GND	SENSOR WIRES RED TO GND	SIGNALS
AIR GND SENSING RELAYS	--	J11	--	16V	J8, J[illegible]	OUT	350Ω	35Ω	WT ON WHL (SQUAT) L OR R
AIR GND SENSING RELAY NO. 9	--	--	J3	--	J9	--	350Ω	35Ω	WT ON WHL (SQUAT) NOSE
LDG GEAR LEVER LOCK SOLENOID	--	J3	--	GND	J13,J28	OUT	350Ω	35Ω	L OR R TRK 1 TILTED
LE TRANSIT LT CONTROL RELAY	--	J2	--	GND	J14,J22 J12,J25	IN	350Ω	35Ω	L & R 3LAT 1 THRU 7 EXTENDED
NOSE WHEEL LDG & TAXI LT RELAYS	--	J8	--	GND	J6	IN	350Ω	35Ω	NLG DOWNLOCK
AFCS MAIN L GEAR STRUT RLYS	--	J11	--	GND	J8	IN	350Ω	35Ω	WT ON WHL (SQUAT) L
AFCS MAIN L GEAR TRUCK TILT RLY	--	J3	--	GND	J13	OUT	350Ω	35Ω	L TRK 1 TILTED
AFCS MAIN L GEAR TRUCK TILT RLY	--	J5	--	GND	J28	OUT	350Ω	35Ω	L TRK 2 TILTED
AFCS MAIN R GEAR STRUT RLYS	--	J11	--	16V	J7	OUT	350Ω	35Ω	WT ON WHL (SQUAT) R
AFCS MAIN R GEAR TRUCK TILT RLY	--	J3	--	GND	J28	OUT	350Ω	35Ω	R TRK 1 TILTED
AFCS MAIN R GEAR TRUCK TILT RLY	--	J5	--	GND	J13	OUT	350Ω	35Ω	R TRK 2 TILTED
AURAL WARNING BOX	--	J1	--	--	--				LDG GR WRN
AURAL WARNING BOX	--	J1	--	--	--				TAKEOFF WRN
DOOR	1A33	J7	--	16V	J8	OUT	350Ω	35Ω	L MLG DR UPLOCK
DOOR	1A33	J7	--	16V	J7	OUT	350Ω	35Ω	R MLG DR UPLOCK
INTRANS	1A12	J7	--	GND	J6	IN	350Ω	35Ω	NLG DOWNLOCK
INTRANS	1A12	J7	--	GND	J8	IN	350Ω	35Ω	L MLG DOWNLOCK
INTRANS	1A12	J7	--	GND	J7	IN	350Ω	35Ω	R MLG DOWNLOCK

M1-0103-31-305

Proximity SW Center Instr Panel Indicator Signals
Figure 113 (Sheet 1)

INDICATOR OR LOAD	ILCB CARDS	LGC BOX CD	SW BOX CD BRVR	SW LGC V	SW BOX CD SW	TGT POSN	SNSR WIRES BLUE TO GND	SNSR WIRES RED TO GND	SIGNALS
INTRANS	1A12	J7	--	GND	J8	IN	350 Ω	35 Ω	L MLG UP POSN
INTRANS	1A12	J7	--	GND	J7	IN	350 Ω	35 Ω	R MLG UP POSN
LE EXT	1A29	J2	--	GND	J14	IN	350 Ω	35 Ω	L SLAT 1
LE EXT	1A29	J2	--	GND	J14	IN	350 Ω	35 Ω	L SLAT 2
LE EXT	1A29	J2	--	GND	J14	IN	350 Ω	35 Ω	L SLAT 3
LE EXT	1A29	J2	--	GND	J14	IN	350 Ω	35 Ω	L SLAT 4
LE EXT	1A29	J2	--	GND	J22	IN	350 Ω	35 Ω	L SLAT 5
LE EXT	1A29	J2	--	GND	J22	IN	350 Ω	35 Ω	L SLAT 6
LE EXT	1A29	J2	--	GND	J22	IN	350 Ω	35 Ω	L SLAT 7
LE EXT	1A29	J2	--	GND	J12	IN	350 Ω	35 Ω	R SLAT 1
LE EXT	1A29	J2	--	GND	J12	IN	350 Ω	35 Ω	R SLAT 2
LE EXT	1A29	J2	--	GND	J12	IN	350 Ω	35 Ω	R SLAT 3
LE EXT	1A29	J2	--	GND	J25	IN	350 Ω	35 Ω	R SLAT 4
LE EXT	1A29	J2	--	GND	J25	IN	350 Ω	35 Ω	R SLAT 5
LE EXT	1A29	J2	--	GND	J25	IN	350 Ω	35 Ω	R SLAT 6
LE EXT	1A29	J2	--	GND	J13	IN	350 Ω	35 Ω	R SLAT 7
LEFT GEAR	1A27	--	J2	--	J8	--	350 Ω	35 Ω	L MLG DN-LOCK
NOSE GEAR	1A12	--	J2	--	J6	--	350 Ω	35 Ω	NLG DN-LOCK
RIGHT GEAR	1A27	--	J2	--	J7	--	350 Ω	35 Ω	R MLG DN-LOCK
TRUCK	1A12	J3	--	GND	J13, 28	OUT	350 Ω	35 Ω	L OR R TRK 1
HYD SERV CTR DISARMING RLY	--	--	J18	--	J27	--	350 Ω	35 Ω	HYDR SVCE DR
OPRG (ENG 1)	1A27	J10	--	GND	J23	IN	330 Ω	35 Ω	THR RVS 1 PRESS
OPRG (ENG 2)	1A27	J9	--	GND	J26	IN	330 Ω	35 Ω	THR RVS 2 PRESS
OPRG (ENG 3)	1A27	J9	--	GND	J21	IN	330 Ω	35 Ω	THR RVS 3 PRESS
INTRANS (ENG 1)	1A12	J10	--	16V	J23	OUT	330 Ω	35 Ω	THR RVS 1 DEPLOYED
INTRANS (ENG 2)	1A27	J10	--	16V	J26	OUT	330 Ω	35 Ω	THR RVS 2 DEPLOYED
INTRANS (ENG 3)	1A12	J9	--	16V	J21	OUT	330 Ω	35 Ω	THR RVS 3 DEPLOYED
INTRANS (ENG 1)	1A12	J10	--	GND	J23	IN	330 Ω	35 Ω	THR RVS 1 UNLOCK
INTRANS (ENG 2)	1A27	J10	--	GND	J26	IN	330 Ω	35 Ω	THR RVS 2 UNLOCK
INTRANS (ENG 3)	1A12	J9	--	GND	J21	IN	330 Ω	35 Ω	THR RVS 3 UNLOCK

M1-5001-31-247

Proximity SW Center Instr Panel Indicator Signals
Figure 113 (Sheet 2)

INDICATOR	ILCB CD	LGC BOX CD	SW BOX CD DRIVER	SW CD LGC V	SW BOX CD SW	TARGET POSITION	SENSOR WIRES BLU TO GND	SENSOR WIRES RED TO GND	SIGNALS
AFT CARGO	1A8	--	J4	--	J11	OUT	350 Ω	35 Ω	AFT CARGO DR
AFT S-DUCT	1A6	--	J3	--	J13	OUT	350 Ω	35 Ω	AFT S-DUCT ACCESS DR
AVIONICS	1A8	--	J18	--	J26	OUT	350 Ω	35 Ω	AVIONICS (FESC) DR
CTR CARGO	1A8	--	J4	--	J11	OUT	350 Ω	35 Ω	CTR CARGO DR
ESCAPE HATCH	1A26	--	J19	--	J28	OUT	350 Ω	35 Ω	ESC HATCH
FWD CARGO	1A8	--	J3	--	J13	OUT	350 Ω	35 Ω	FWD CARGO DR
FWD S-DUCT	1A32	--	J2	--	J9	OUT	350 Ω	35 Ω	FWD S-DUCT ACCESS DR
GALLEY	1A8	--	J17	--	J22	OUT	350 Ω	35 Ω	GALY DOOR
LH AFT ENTRY	1A22	--	J20	--	J23	OUT	350 Ω	35 Ω	L AFT ENTR DR
LH CTR ENTRY	1A28	--	J18	--	J27	OUT	350 Ω	35 Ω	L CTR ENTR DR
LH EMER	1A32	--	J19	--	J24	OUT	350 Ω	35 Ω	L EMER DOOR
LH FWD ENTRY	1A28	--	J18	--	J27	OUT	350 Ω	35 Ω	L FWD ENTR DR
LH GEAR DOOR	1A33	J7	--	16V	J8	OUT	350 Ω	35 Ω	L MLG DOOR UPLOCK
MAIN ELEC	1A31	--	J4	--	J11	OUT	350 Ω	35 Ω	MID ELEC SVCE CTR DOOR
NOSE GEAR DOOR	1A33	J7	--	16V	J6	OUT	350 Ω	35 Ω	L NOSE DR UP POSITION
NOSE GEAR DOOR	1A33	J7	--	16V	J6	OUT	350 Ω	35 Ω	R NOSE DR UP POSITION
RH AFT ENTRY	1A31	--	J3	--	J9	OUT	350 Ω	35 Ω	R AFT ENTR DR
RH CTR ENTRY	1A31	--	J17	--	J28	OUT	350 Ω	35 Ω	R CTR ENTR DR
RH EMER	1A26	--	J3	--	J9	OUT	350 Ω	35 Ω	R EMER DOOR
RH FWD ENTRY	1A31	--	J20	--	J24	OUT	350 Ω	35 Ω	R FWD ENTR DR
RH GEAR DOOR	1A33	J7	--	16V	J7	OUT	350 Ω	35 Ω	R MLG DOOR UPLOCK

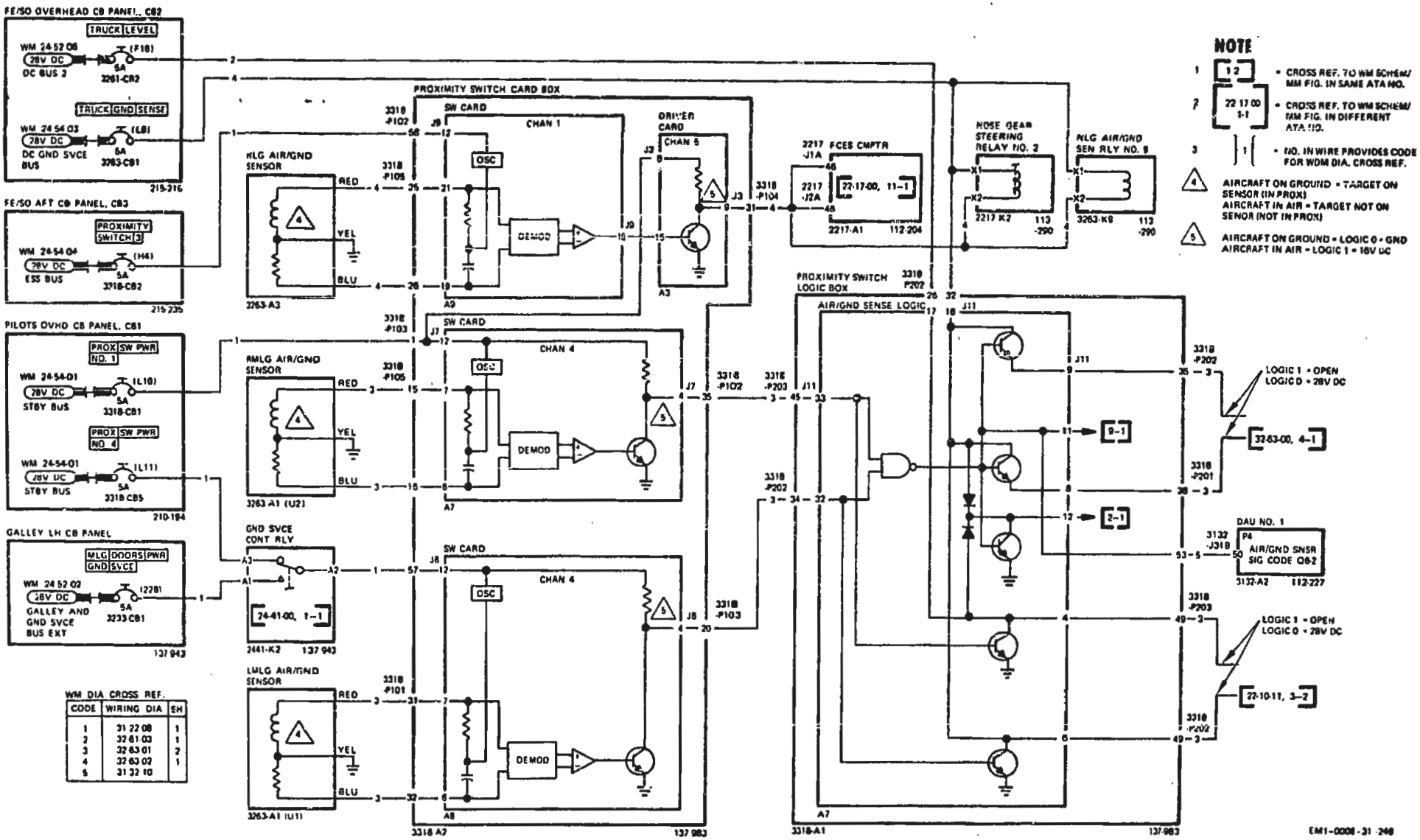
M1-5000-31-497

Proximity SW FE/SO Indicator Signals
Figure 114 (Sheet 1)

INDICATOR	ILCB CARDS	LOGIC BOX CARDS	SW BOX CARDS DRVR	SW CARD LOGIC VOLTS	SW BOX CARDS SW	TARGET POSITION	SENSOR WIRES BLU TO GND	SENSOR WIRES RED TO GND	SIGNALS
SLAT MONITOR 1 LEFT WING	1A28	--	J5	--	J14	IN	350Ω	35Ω	L SLAT 1
SLAT MONITOR 2 LEFT WING	1A28	--	J5	--	J14	IN	350Ω	35Ω	L SLAT 2
SLAT MONITOR 3 LEFT WING	1A28	--	J5	--	J14	IN	350Ω	35Ω	L SLAT 3
SLAT MONITOR 4 LEFT WING	1A28	--	J5	--	J14	IN	350Ω	35Ω	L SLAT 4
SLAT MONITOR 5 LEFT WING	1A31	--	J17	--	J22	IN	350Ω	35Ω	L SLAT 5
SLAT MONITOR 6 LEFT WING	1A31	--	J17	--	J22	IN	350Ω	35Ω	L SLAT 6
SLAT MONITOR 7 LEFT WING	1A31	--	J17	--	J22	IN	350Ω	35Ω	L SLAT 7
SLAT MONITOR 1 RIGHT WING	1A24	--	J4	--	J12	IN	350Ω	35Ω	R SLAT 1
SLAT MONITOR 2 RIGHT WING	1A24	--	J4	--	J12	IN	350Ω	35Ω	R SLAT 2
SLAT MONITOR 3 RIGHT WING	1A22	--	J5	--	J12	IN	350Ω	35Ω	R SLAT 3
SLAT MONITOR 4 RIGHT WING	1A22	--	J20	--	J25	IN	350Ω	35Ω	R SLAT 4
SLAT MONITOR 5 RIGHT WING	1A22	--	J20	--	J25	IN	350Ω	35Ω	R SLAT 5
SLAT MONITOR 6 RIGHT WING	1A8	--	J19	--	J25	IN	350Ω	35Ω	R SLAT 6
SLAT MONITOR 7 RIGHT WING	1A8	--	J20	--	J25	IN	350Ω	35Ω	R SLAT 7
TAIL SKID	1A13	J4	--	16V	J10	OUT	65Ω	65Ω	TAIL SKID DN
TAIL SKID	1A13	J4	--	16V	J10	OUT	65Ω	65Ω	TAIL SKID UP
UNLKD	1A7	--	J2	--	J12	OUT	350Ω	35Ω	RAT DEPLOYED

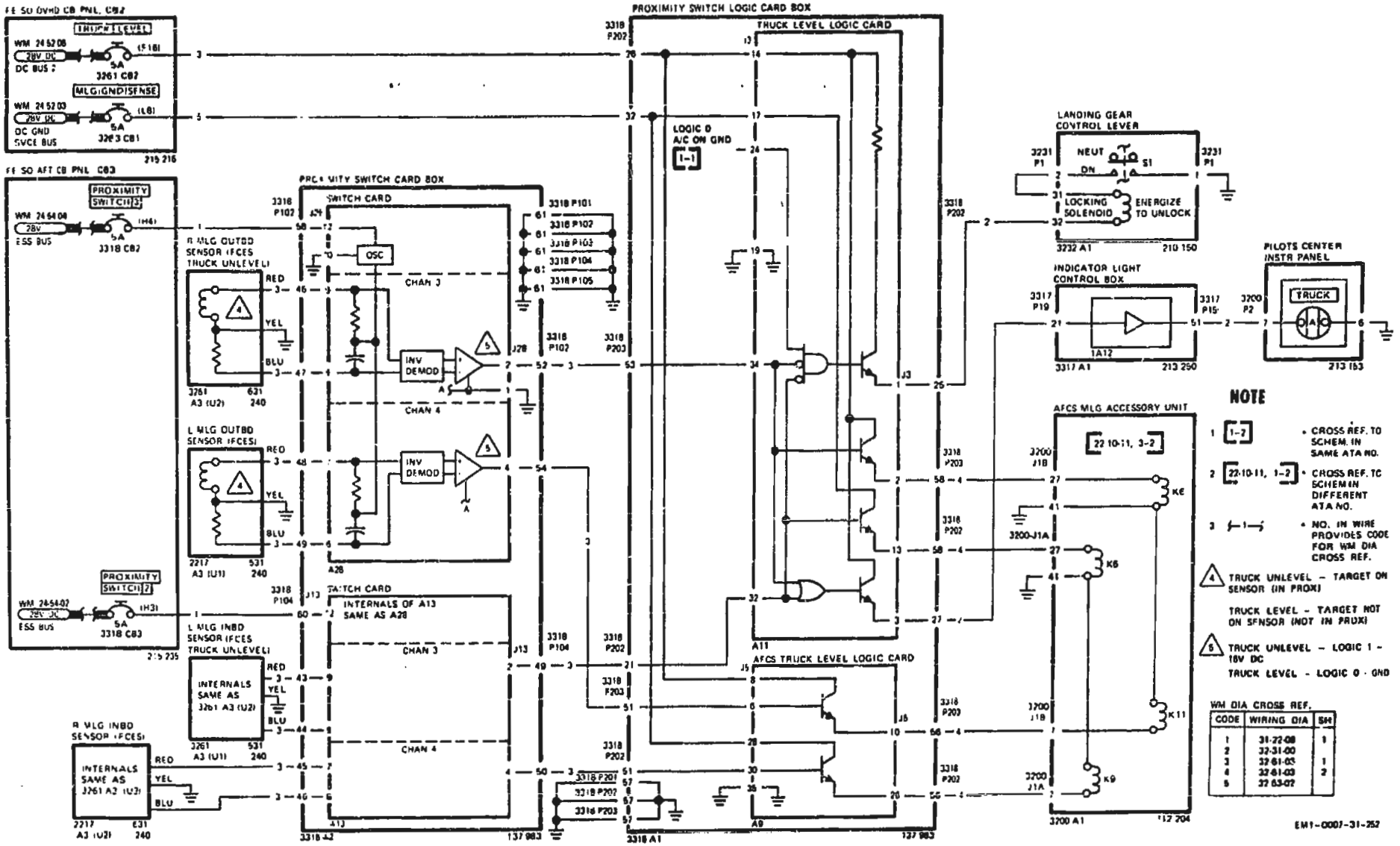
M1-0102-31-297

Proximity SW FE/SO Indicator Signals
Figure 114 (Sheet 2)



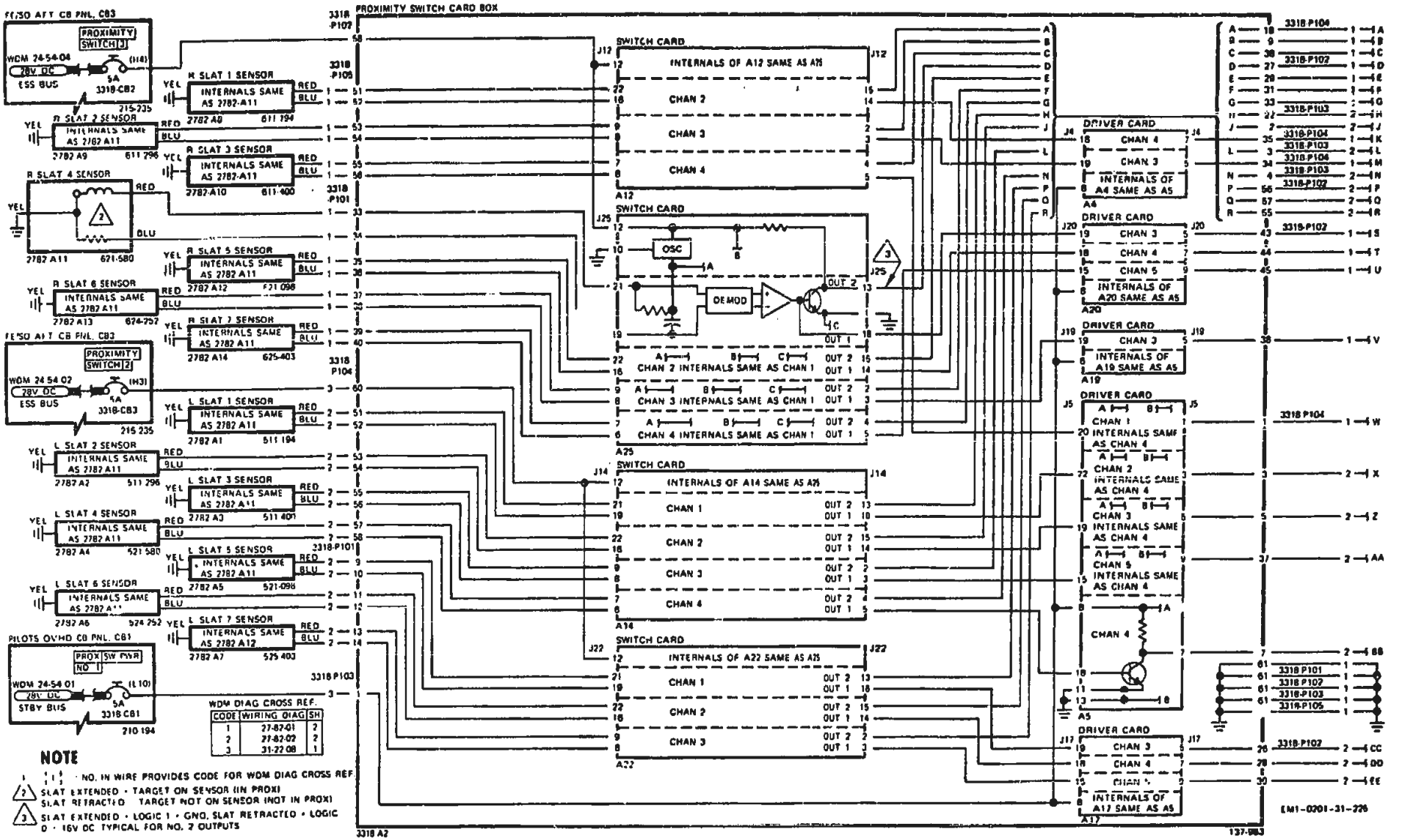
Proximity System Schematic - Air Ground Sensing
SCHEM 1

R
R
001B EFFECTIVITY: ALL


PROXIMITY SWITCH LOGIC CARD BOX
TRUCK LEVEL LOGIC CARD
LANDING GEAR CONTROL LEVER
INDICATOR LIGHT CONTROL BOX
PILOTS CENTER INSTR PANEL
AFCS MLG ACCESSORY UNIT
AFCS TRUCK LEVEL LOGIC CARD
PROXIMITY SWITCH CARD BOX
SWITCH CARD
R MLG OUTBD SENSOR (FCES)
L MLG OUTBD SENSOR (FCES)
L MLG INBD SENSOR (FCES)
R MLG INBD SENSOR (FCES)
FE SO OVHD CB PNL, C82
FE SO AFT CB PNL C83
LOGIC 0 A/C ON GND
NOTE
WM DIA CROSS REF.

Proximity System Schematic - Gear Truck Level
SCHEM 2

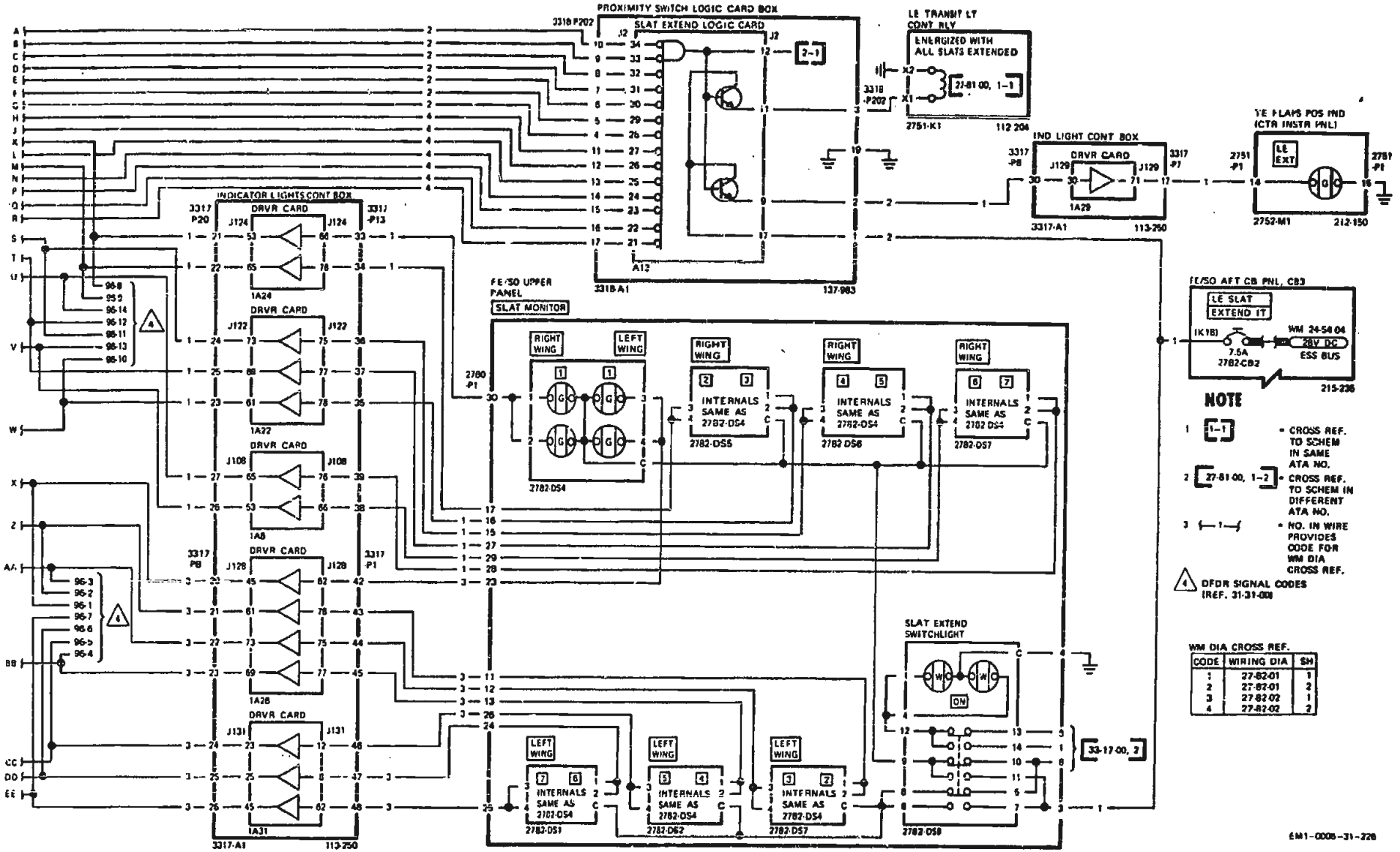
EFFECTIVITY: ALL



Proximity System Schematic - Slat Extend
SCHEM 3 (Sheet 1)

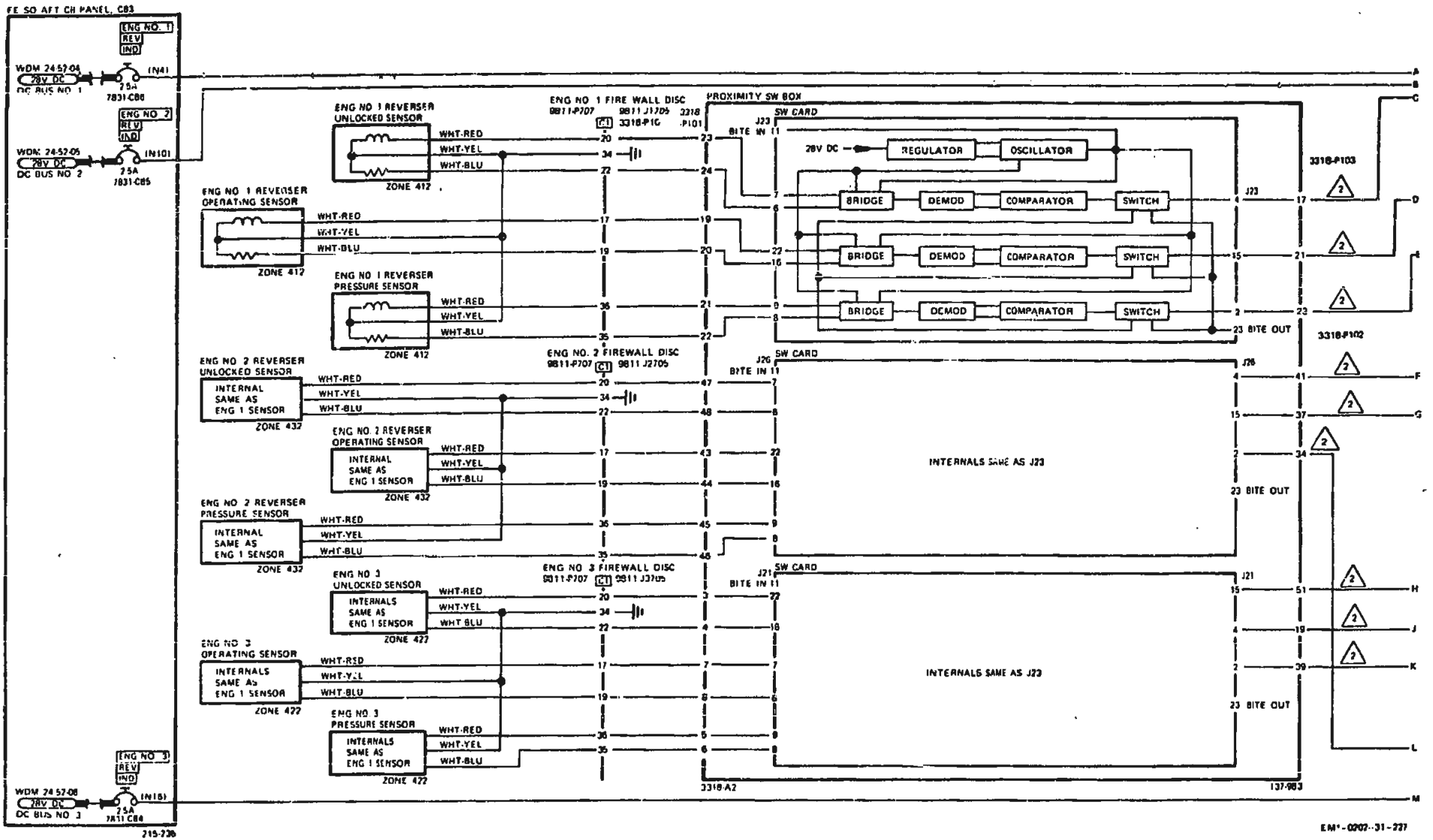
R
R
001B

EFFECTIVITY: ALL



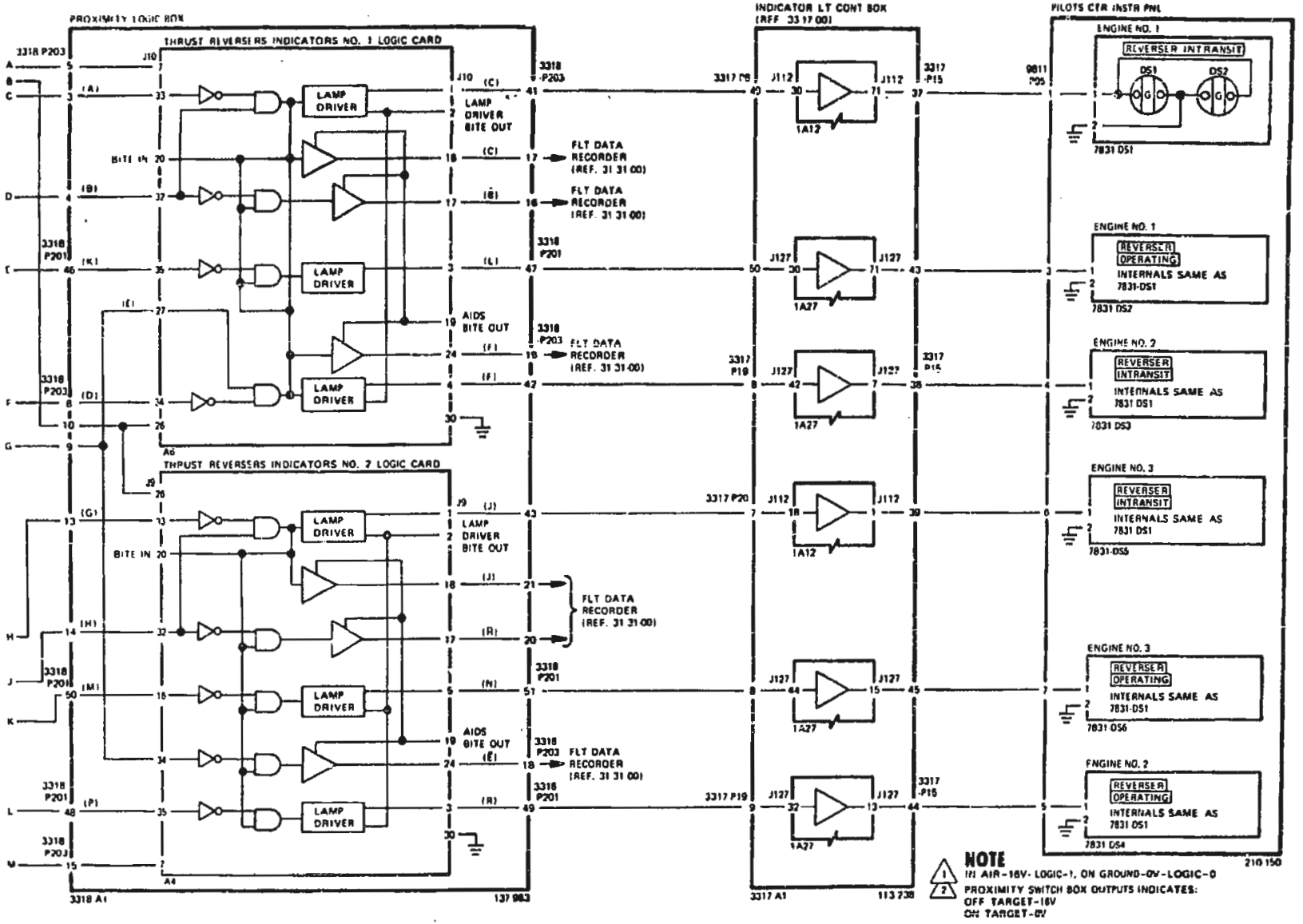
Proximity System Schematic - Slat Extend
SCHEM 3 (Sheet 2)

R EFFECTIVITY: ALL
R
001B



Proximity System Schematic - Thrust Reverser
SCHEM 4 (Sheet 1)

R EFFECTIVITY: ALL
R
001B



LOGIC TABLE		
IN		OUT
A	B	C
1	1	0(0V)
0	1	1(28V)
0	0	0(0V)

LOGIC TABLE		
IN		OUT
D	E	F
1	1	0(0V)
0	1	1(28V)
0	0	0(0V)

LOGIC TABLE		
IN		OUT
G	H	J
1	1	0(0V)
0	1	1(28V)
0	0	0(0V)

LOGIC TABLE	
IN	OUT
K	L
0	1(28V)
1	0(0V)

LOGIC TABLE	
IN	OUT
M	N
0	1(28V)
1	0(0V)

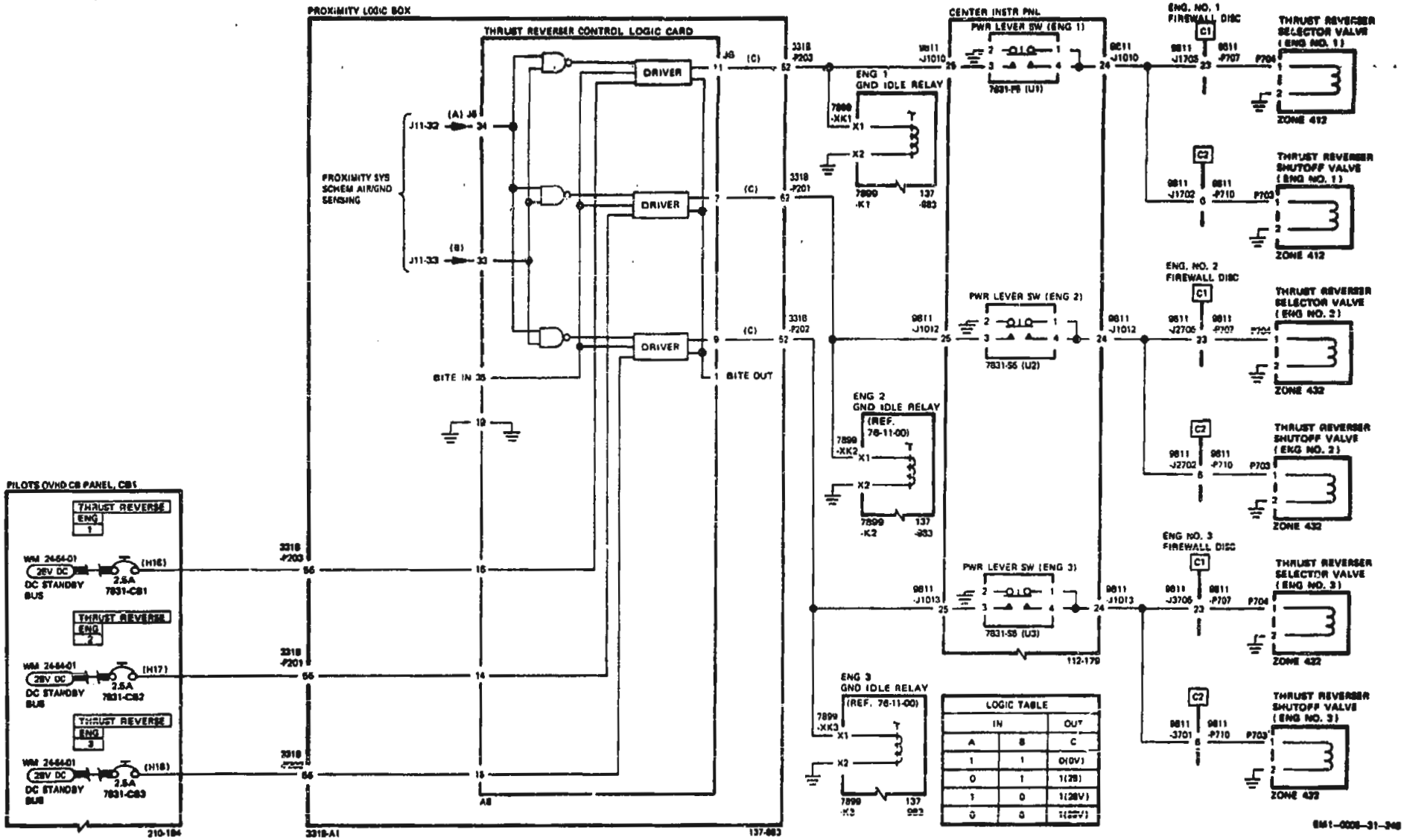
LOGIC TABLE	
IN	OUT
P	R
0	1
1	0

WIRING DIAGRAM
78 31 01 78 31 02 78 31 03 78 31 04 78 31 05 78 31 06

EM1 0002 31-264

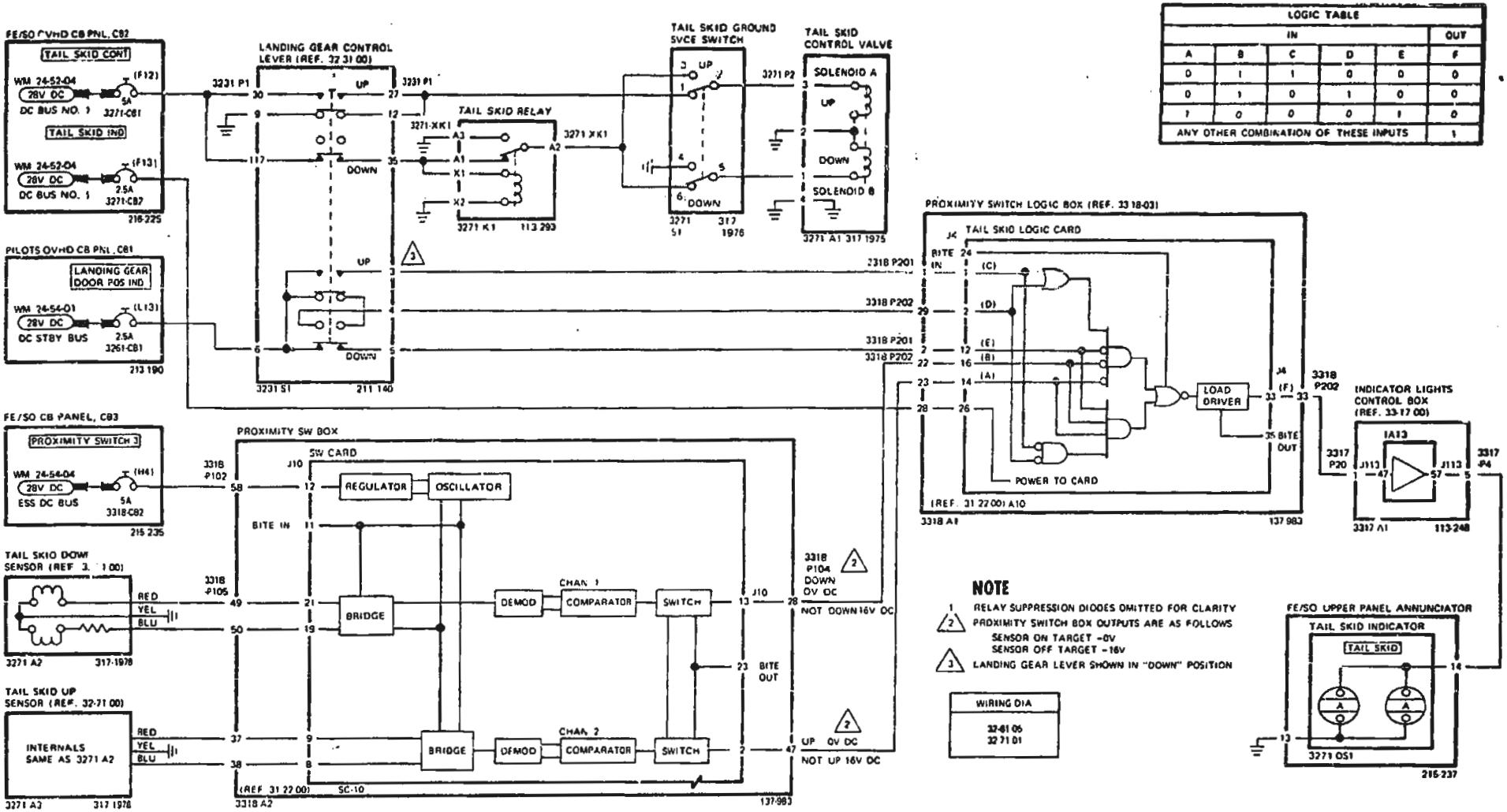
Proximity System Schematic - Thrust Reverser
SCHEM 4 (Sheet 2)

R
R
001B EFFECTIVITY: ALL



R Proximity System Schematic - Thrust Reverser
R SCHEM 4 (Sheet 3)

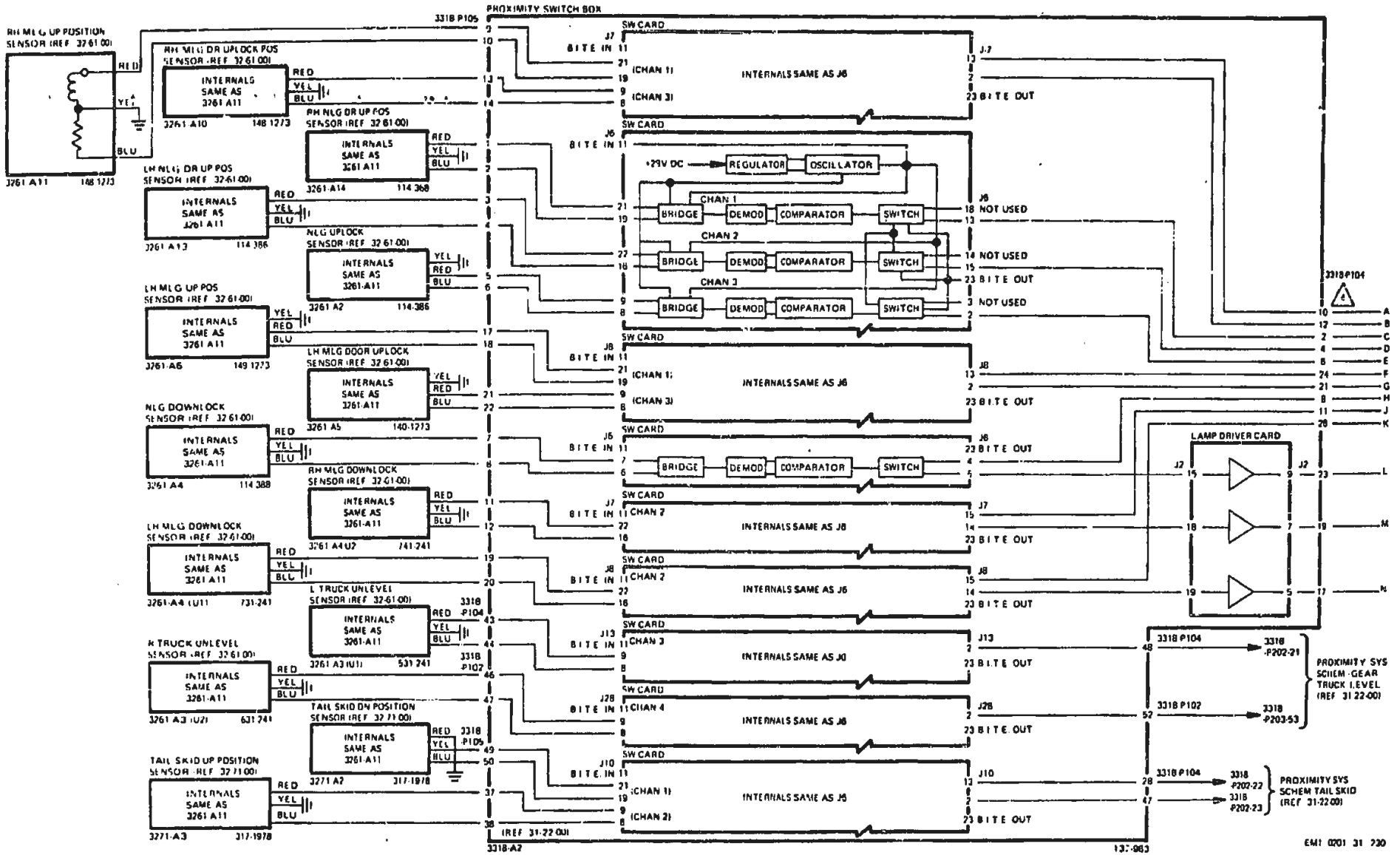
EFFECTIVITY: ALL



R R Proximity System Schematic - Tail Skid Indication
SCHEM 5

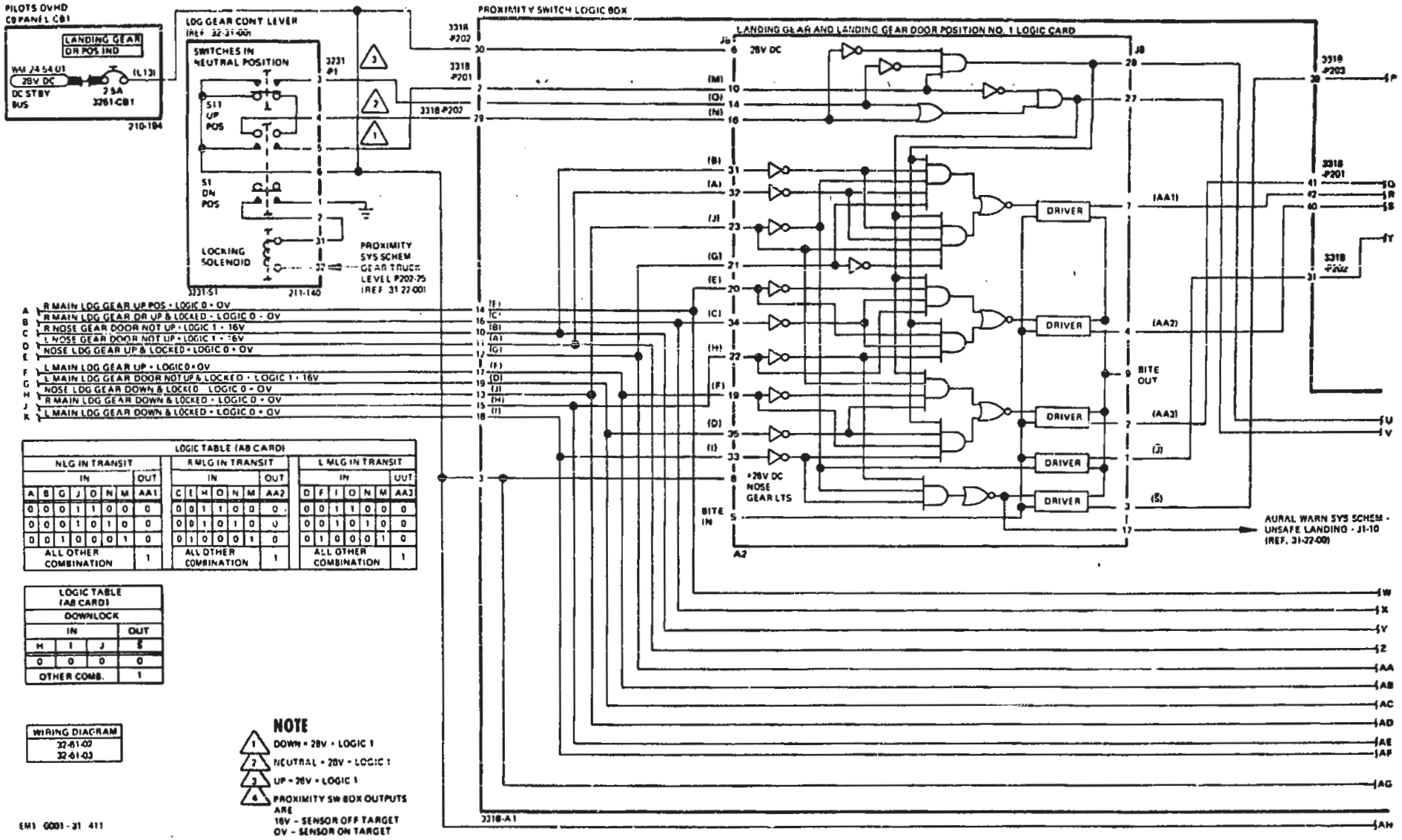
EFFECTIVITY: ALL

001B



Proximity System Schematic - Landing Gear and Door Position Indication
SCHEM 6 (Sheet 1)

R
R
001B EFFECTIVITY: ALL


PILOTS OVHD
COPANEL CB1
LANDING GEAR
DR POS IND
28V DC
DC STBY BUS
2.5A
3261-CB1
210-194
LDG GEAR CONT LEVER
SWITCHES IN NEUTRAL POSITION
S11 UP POS
S1 DN POS
LOCKING SOLENOID
3231-S1
211-140
PROXIMITY SYS SCHEM - GEAR TRUCK LEVEL P202-75 (REF 31-22-001)
PROXIMITY SWITCH LOGIC BOX
LANDING GEAR AND LANDING GEAR DOOR POSITION NO. 1 LOGIC CARD
R MAIN LDG GEAR UP POS - LOGIC 0 - 0V
R MAIN LDG GEAR DR UP & LOCKED - LOGIC 0 - 0V
R NOSE GEAR DOOR NOT UP - LOGIC 1 - 16V
L NOSE GEAR DOOR NOT UP - LOGIC 1 - 16V
NOSE LDG GEAR UP & LOCKED - LOGIC 0 - 0V
L MAIN LDG GEAR UP - LOGIC 0 - 0V
L MAIN LDG GEAR DOOR NOT UP & LOCKED - LOGIC 1 - 16V
NOSE LDG GEAR DOWN & LOCKED - LOGIC 0 - 0V
R MAIN LDG GEAR DOWN & LOCKED - LOGIC 0 - 0V
L MAIN LDG GEAR DOWN & LOCKED - LOGIC 0 - 0V
28V DC
DRIVER
BITE OUT
+28V DC NOSE GEAR LTS
BITE IN
AURAL WARN SYS SCHEM - UNSAFE LANDING - 31-10 (REF. 31-22-00)
A2
3318-A1

LOGIC TABLE (AB CARD)

NLG IN TRANSIT							
IN							OUT
A	B	G	J	O	N	M	AA1
0	0	0	1	1	0	0	0
0	0	0	1	0	1	0	0
0	0	1	0	0	0	1	0
ALL OTHER COMBINATION							1

R MLG IN TRANSIT							
IN							OUT
C	E	H	O	N	M		AA2
0	0	1	1	0	0		0
0	0	1	0	1	0		0
0	1	0	0	0	1		0
ALL OTHER COMBINATION							1

L MLG IN TRANSIT							
IN							OUT
D	F	I	O	N	M		AA3
0	0	1	1	0	0		0
0	0	1	0	1	0		0
0	1	0	0	0	1		0
ALL OTHER COMBINATION							1

LOGIC TABLE (AB CARD)

DOWNLOCK			
IN			OUT
H	I	J	S
0	0	0	0
OTHER COMB.			1

WIRING DIAGRAM
32-61-02
32-61-03

NOTE

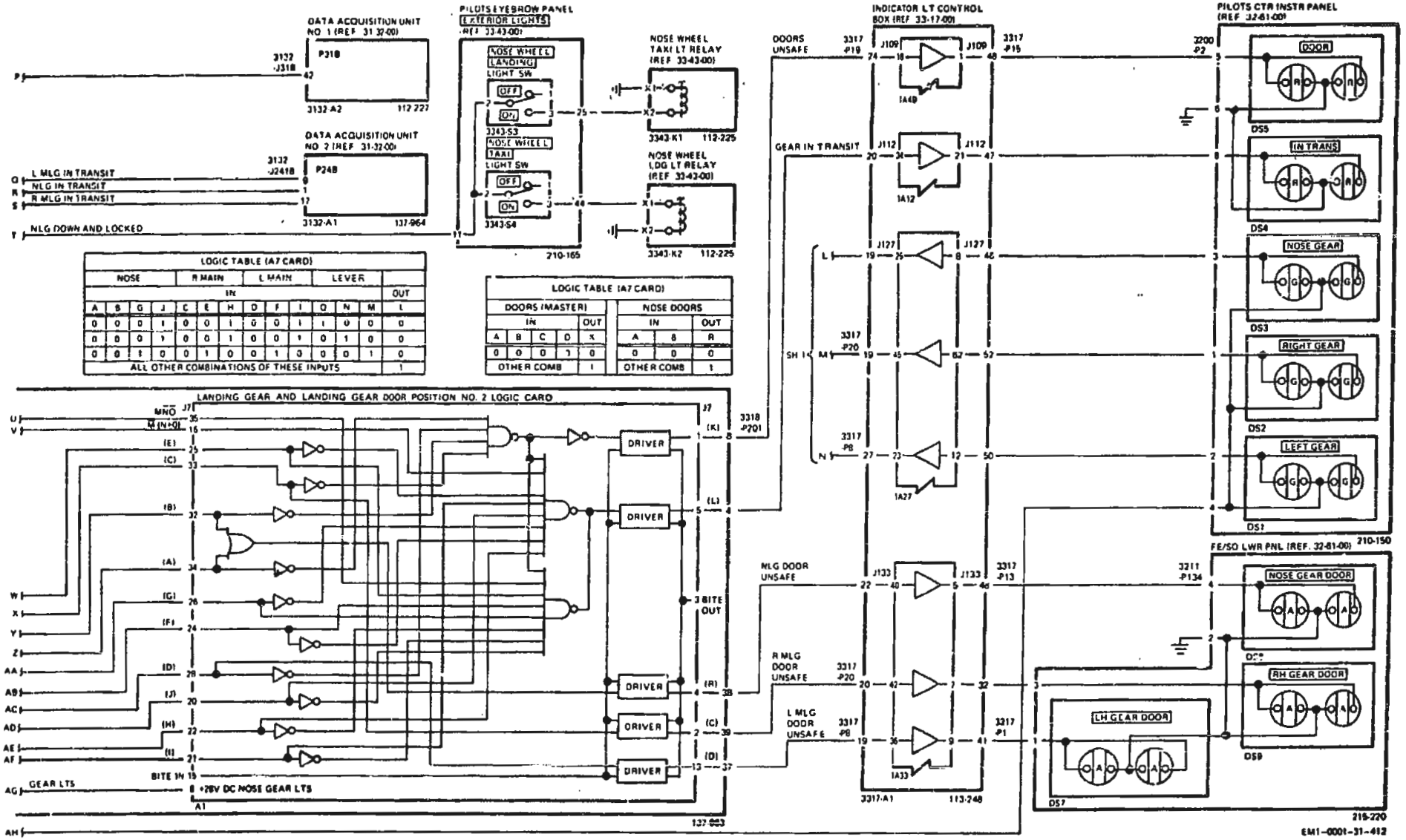
1. DOWN = 28V = LOGIC 1
2. NEUTRAL = 28V = LOGIC 1
3. UP = 28V = LOGIC 1
4. PROXIMITY SW BOX OUTPUTS ARE
   16V - SENSOR OFF TARGET
   0V - SENSOR ON TARGET

EM1 0001-31 411

Proximity System Schematic - Landing Gear and Door Position Indication
SCHEM 6 (Sheet 2)

R
R
001B

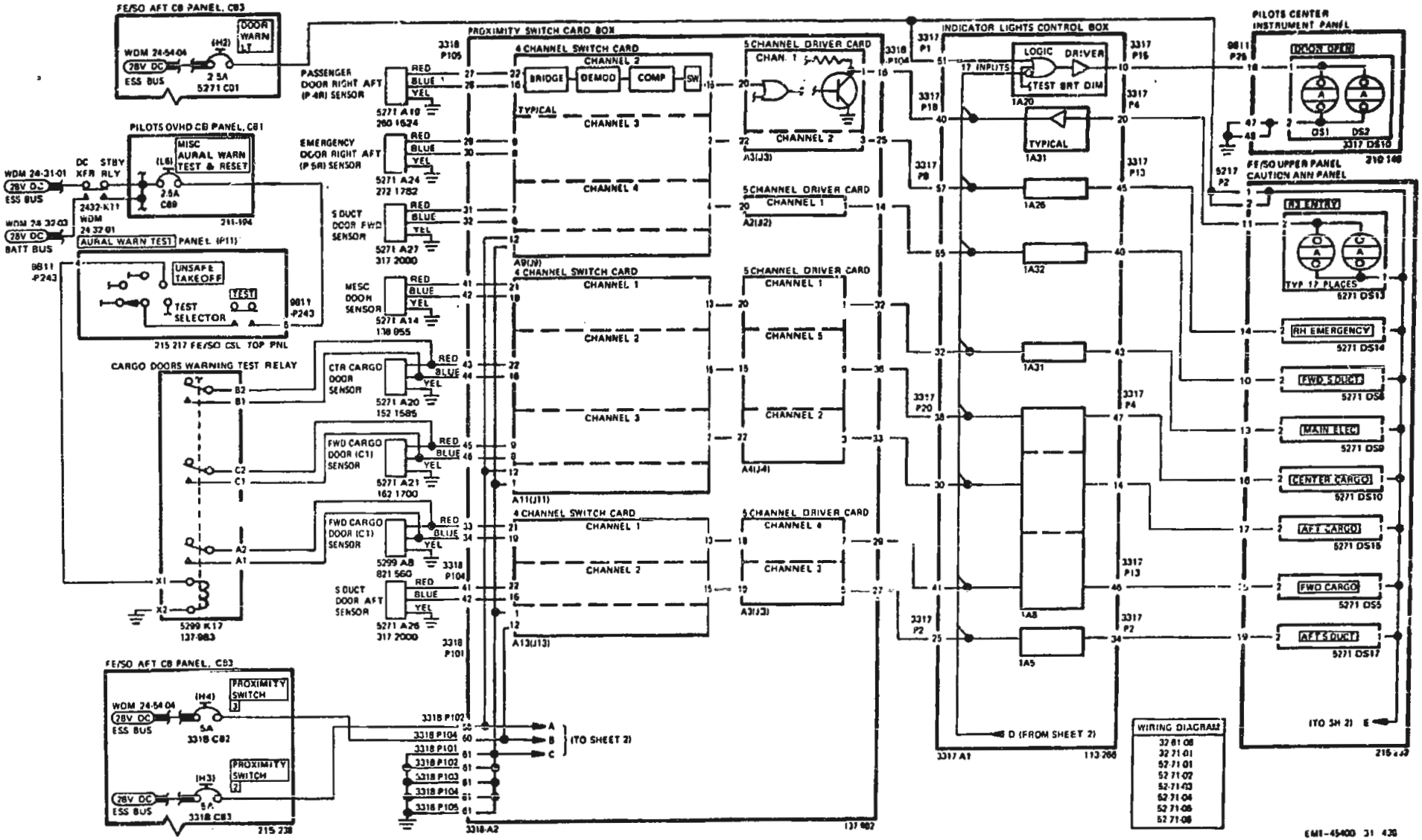
EFFECTIVITY: ALL



Proximity System Schematic - Landing Gear and Door Position Indication
SCHEM 6 (Sheet 3)

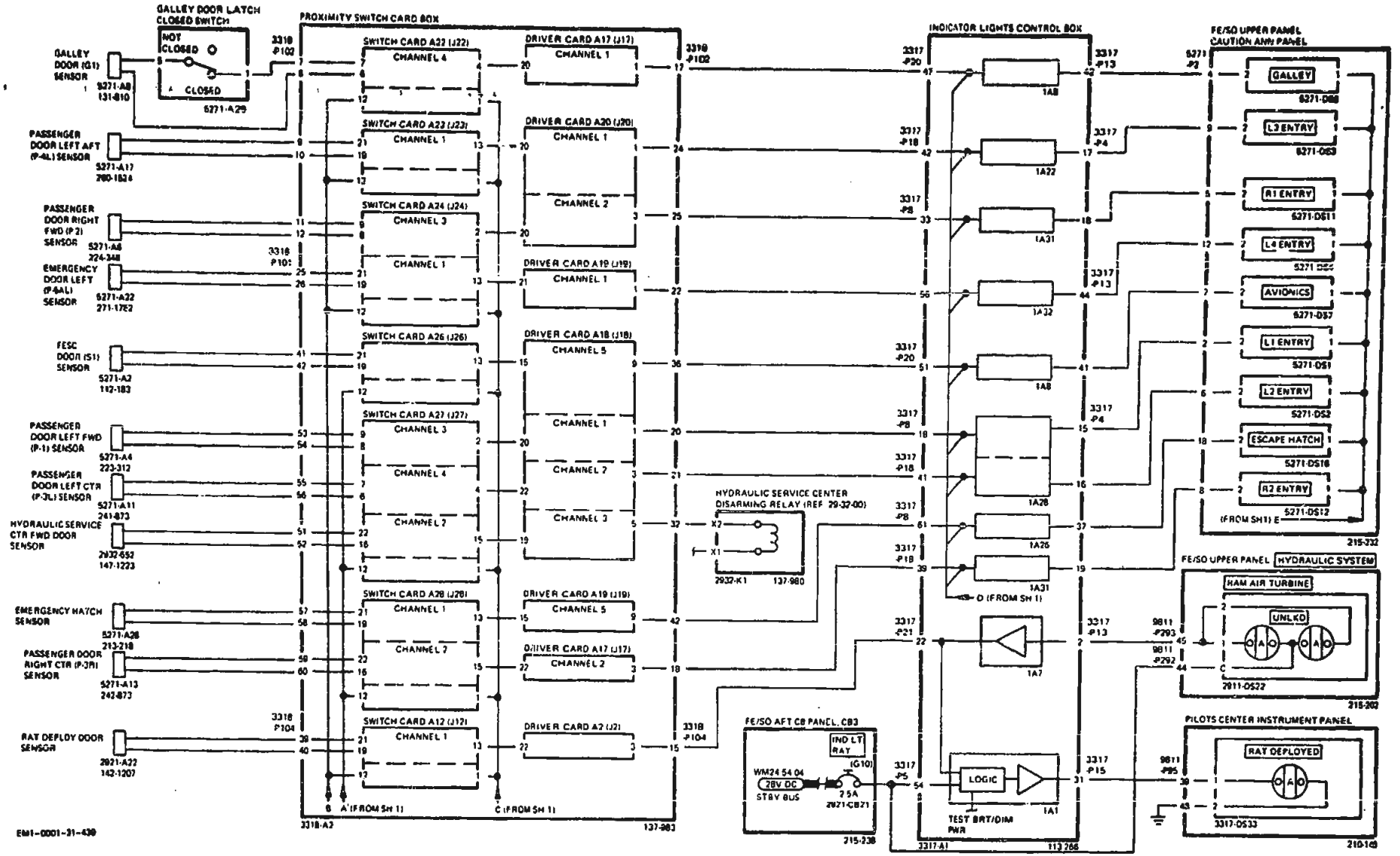
R
R
0018

EFFECTIVITY: ALL


FE/SO AFT CB PANEL, C83
PROXIMITY SWITCH CARD BOX
INDICATOR LIGHTS CONTROL BOX
PILOTS CENTER INSTRUMENT PANEL
PILOTS OVHD CB PANEL, C81
FE/SO UPPER PANEL CAUTION ANN PANEL
AURAL WARN TEST PANEL (P11)
CARGO DOORS WARNING TEST RELAY
4 CHANNEL SWITCH CARD
5 CHANNEL DRIVER CARD
PASSENGER DOOR RIGHT AFT (P 4R) SENSOR
EMERGENCY DOOR RIGHT AFT (P 5R) SENSOR
S DUCT DOOR FWD SENSOR
MISC DOOR SENSOR
CTR CARGO DOOR SENSOR
FWD CARGO DOOR (C1) SENSOR
S DUCT DOOR AFT SENSOR
TYPICAL
(TO SHEET 2)
D (FROM SHEET 2)
WIRING DIAGRAM
EMI-45400 31 438

Proximity System Schematic - Fuselage Doors and RAT Deploy Door
SCHEM 7 (Sheet 1)

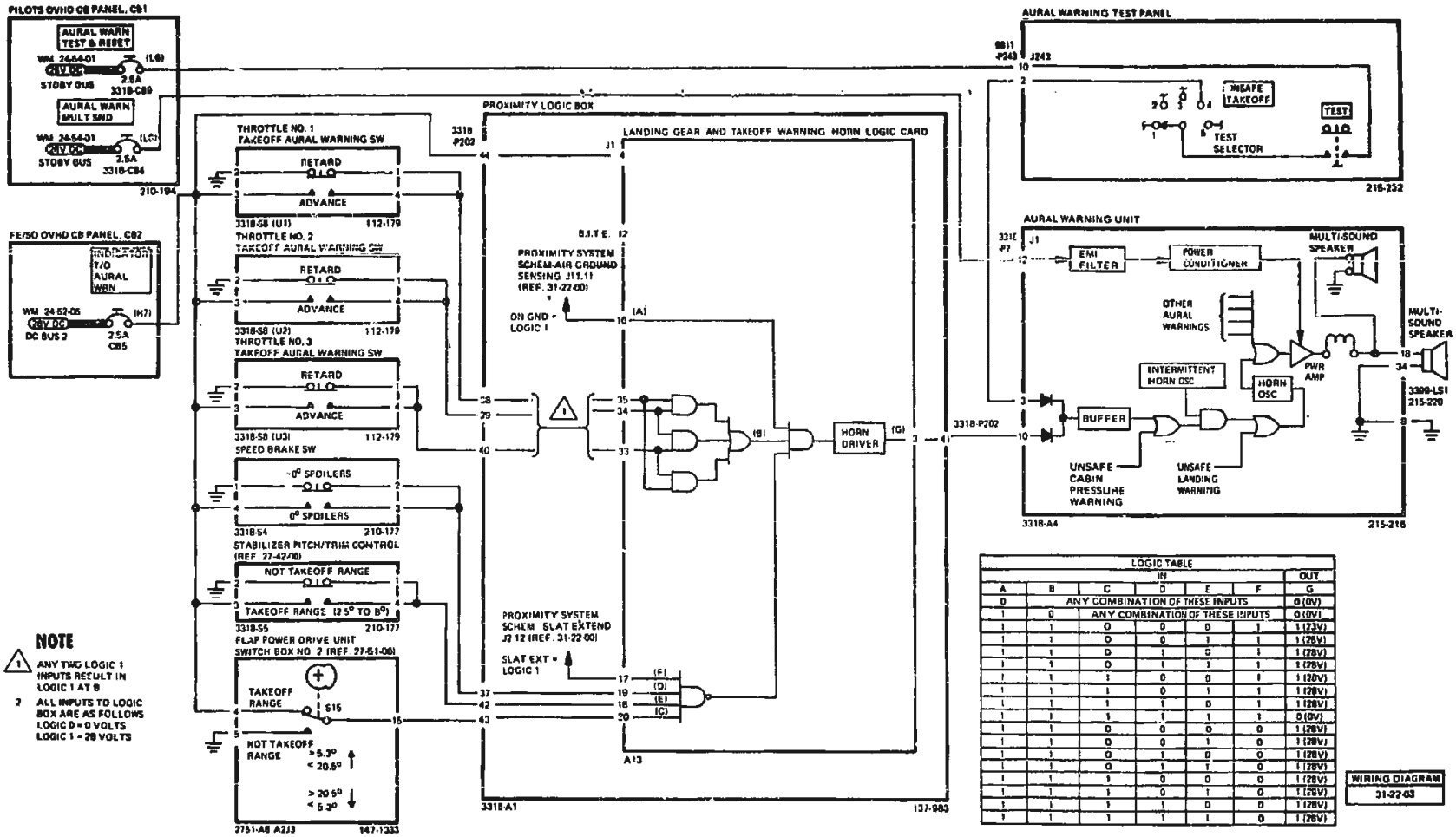
EFFECTIVITY: ALL



R Proximity System Schematic - Fuselage Doors and RAT Deploy Door
R SCHEM 7 (Sheet 2)

EFFECTIVITY: ALL

001B



NOTE

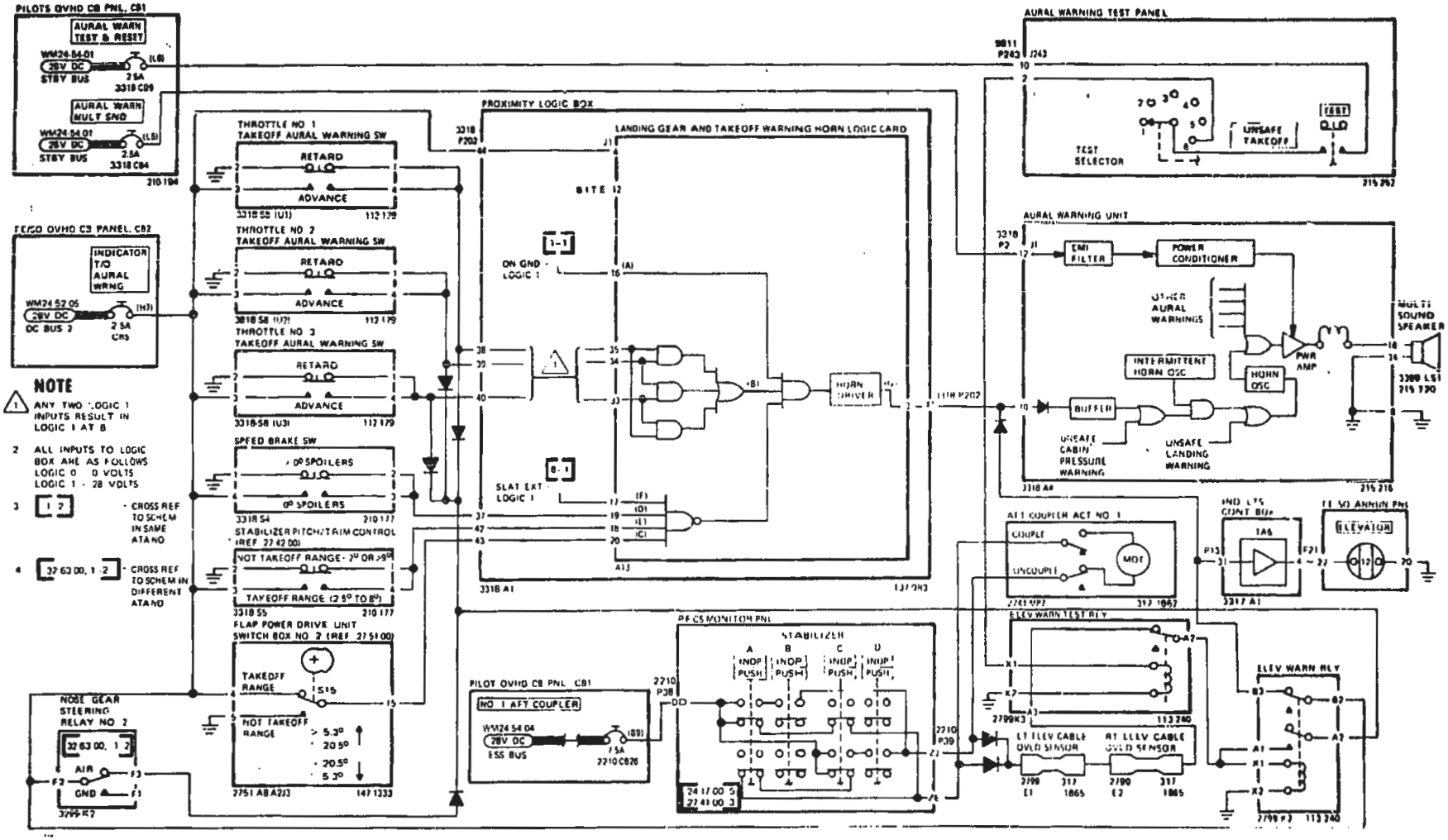
1. ANY TWO LOGIC 1 INPUTS RESULT IN LOGIC 1 AT B
2. ALL INPUTS TO LOGIC BOX ARE AS FOLLOWS LOGIC 0 = 0 VOLTS LOGIC 1 = 28 VOLTS

LOGIC TABLE

IN						OUT
A	B	C	D	E	F	G
0	ANY COMBINATION OF THESE INPUTS					0 (0V)
1	0	ANY COMBINATION OF THESE INPUTS				0 (0V)
1	1	0	0	0	1	1 (28V)
1	1	0	0	1	1	1 (28V)
1	1	0	1	0	1	1 (28V)
1	1	0	1	1	1	1 (28V)
1	1	1	0	0	1	1 (28V)
1	1	1	0	1	1	1 (28V)
1	1	1	1	0	1	1 (28V)
1	1	1	1	1	1	0 (0V)
1	1	0	0	0	0	1 (28V)
1	1	0	0	1	0	1 (28V)
1	1	0	1	0	0	1 (28V)
1	1	0	1	1	0	1 (28V)
1	1	1	0	0	0	1 (28V)
1	1	1	0	1	0	1 (28V)
1	1	1	1	0	0	1 (28V)
1	1	1	1	1	0	1 (28V)

WIRING DIAGRAM 31-22-03

EM1-0000-31-977

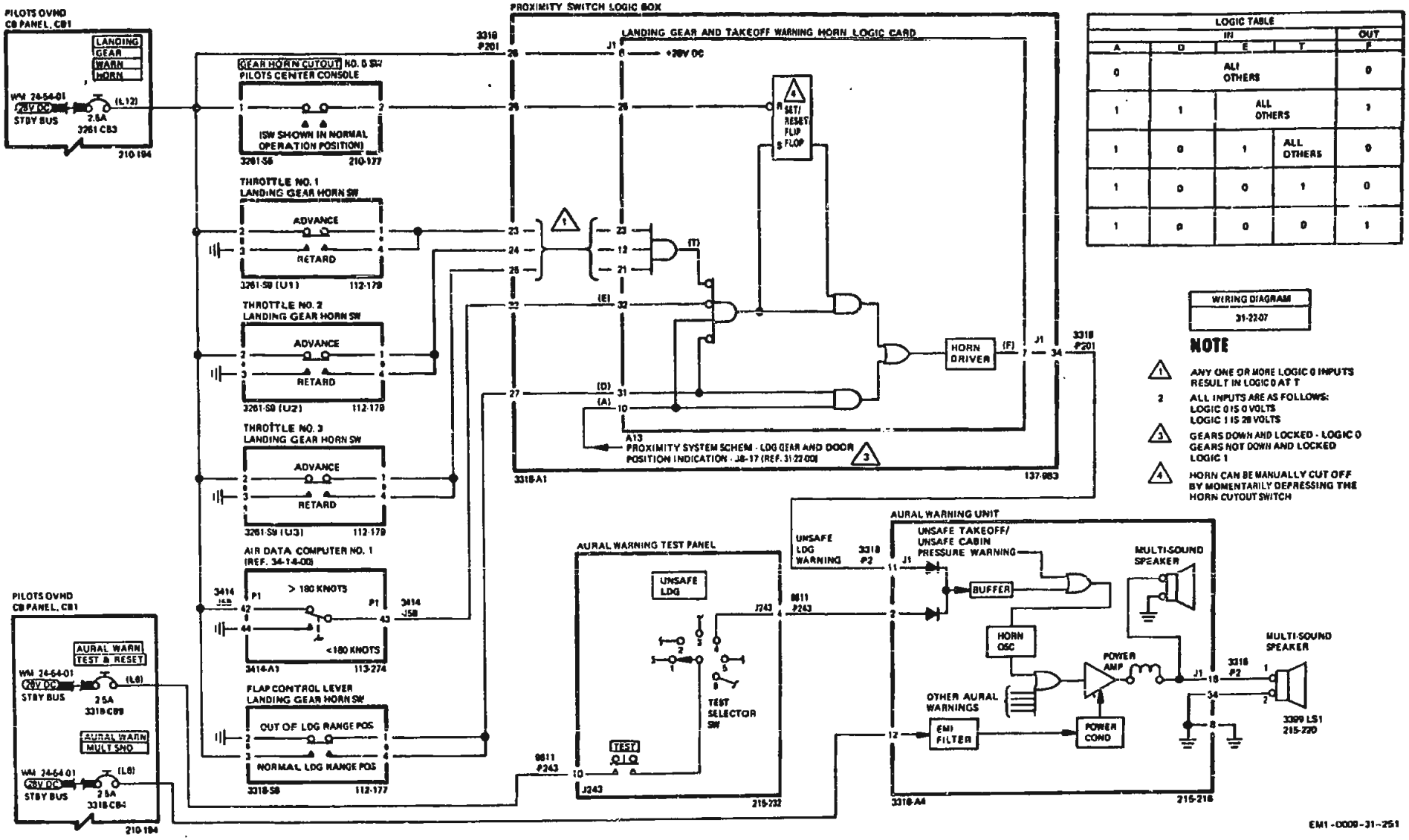


EM1-0000-31-078

CR Aural Warning System - Unsafe Takeoff Warning
CR SCHEM 8

EFFECTIVITY: 001-031 WITH SB27-174 AND 032-999

001B



LOGIC TABLE				
IN				OUT
A	D	E	T	F
0	ALL OTHERS			0
1	1	ALL OTHERS		1
1	0	1	ALL OTHERS	0
1	0	0	1	0
1	0	0	0	1

WIRING DIAGRAM
31-22-07

NOTE

1. ANY ONE OR MORE LOGIC 0 INPUTS RESULT IN LOGIC 0 AT T
2. ALL INPUTS ARE AS FOLLOWS: LOGIC 0 IS 0 VOLTS LOGIC 1 IS 28 VOLTS
3. GEARS DOWN AND LOCKED - LOGIC 0 GEARS NOT DOWN AND LOCKED LOGIC 1
4. HORN CAN BE MANUALLY CUT OFF BY MOMENTARILY DEPRESSING THE HORN CUTOUT SWITCH

Aural Warning System - Unsafe Landing Warning
SCHEM 9

R EFFECTIVITY: ALL
R
0018

PROXIMITY SWITCH SYSTEM/AURAL WARNING SYSTEM ADJUSTMENT AND TEST

1. General

The proximity switch system Built-in Test Equipment (BITE) test is outlined in 31-22-00 Fault Isolation.

Aural warning tests include a BITE test, operational test, and functional tests. The BITE test (Para. 4) checks for inadvertent grounds within the aural warning unit and the circuitry associated with the Captain and F/O ALERT and AP DISC lights on the Automatic Flight Control System (AFCS) warning indicator panel (Ref. 22-13-00). BITE test is accomplished using the AUTOPILOT TEST switch installed on the rear of the aural warning unit case. The operational test (Para. 5) is a confidence check of the aural warning circuits excluding the input or sensing circuits. Functional tests (Para. 6) provide assurance that the entire aural warning system is operational. There are no provisions for system adjustments.

2. Equipment and Materials

The following equipment is used to perform the aural warning system functional tests (Ref. Para. 6).

Pitot-Static Pressure Test Set, Burton 2024B or MB-1 Pitot-Static Pressure Field Tester

Pitot/Static Adapter Kit, Milhard Engineering Co, PN 127-1011, or equivalent

Proximity switch non-ferrous (aluminum) deactuator test target (two each) (Ref. 20-31-01)

Proximity switch ferrous actuator test target (as required) (Ref. 20-31-01)

6-inch scale

3. Referenced Procedures

20-31-01	Proximity Sensor Artificial Target - Maintenance Practices
24-00-00	Electrical Power - Maintenance Practices
R 27-31-00	Elevator Control System - Description and Operation

27-51-00	Wing Trailing Edge Flap Control System - Adjustment and Test
29-11-00	Hydraulic Power System - Maintenance Practices
34-14-00	Central Air Data Computer System - Adjustment and Test

4. Aural Warning System BITE Test

A. Aural Warning Unit - Autopilot Disconnect Warn

(1) Turn on electrical power (Ref. 24-00-00).

(2) On pilots overhead circuit breaker panel CB1, zone 210, verify that the following circuit breakers are closed:

MISC - AURAL WARN - MULT SND (L8)

(3) On FE/SO overhead circuit breaker panel CB2, zone 215, verify that the following circuit breakers are closed:

AFCS WARNING

CAPT (K18)

F/O (K19)

(4) Locate aural warning unit installed under FE/SO desk, zone 215. Remove four bolts securing aural warning unit to bracket. Carefully pull aural warning unit straight out from bracket to gain access to AUTOPILOT TEST toggle switch on rear of case. Note that toggle switch is spring-loaded to center position.

R (5) Actuate toggle switch to position A and observe that Captain and F/O AFCS WARNING panel ALERT and AP DISC lights do not come on and autopilot disengagement alarm (wailer) does not sound. Release toggle switch and confirm that switch returns to spring-loaded center position.

NOTE: Toggle switch position A checks for a short to ground in autopilot system B. Switch position B checks for a short to ground in autopilot system A.

R (6) Actuate toggle switch down to position B and observe that Captain and F/O AFCS WARNING panel ALERT and AP DISC lights do not come on and autopilot disengagement alarm (wailer) does not sound. Release toggle switch

and confirm that switch returns to spring-loaded center position.

(7) Reinstall aural warning unit flush against bracket and secure in place with four bolts previously removed in Step 4A(4).

(8) Turn off electrical power (Ref. 24-00-00) or proceed on to the operational and/or functional tests, as required.

5. Aural Warning System Operational Test

A. Aural Warning Unit

(1) Turn on electrical power (Ref. 24-00-00).

(2) On pilots overhead circuit breaker panel CB1, zone 210, verify that the following circuit breakers are closed:

MISC - AURAL WARN

TEST & RESET (L6)

OVSP (L7)

MULT SND (L8)

On Flight Engineer/Second Officers overhead circuit breaker panel CB2, zone 215, verify that the following
R circuit breaker is closed:

T/O AURAL WRNG (H7)

(3) On Flight Engineer/Second Officers AURAL WARN TEST panel, set selector, in turn, to each position as listed in Table 501 and depress TEST switch. Aural warnings must sound as specified in Table 501.

Aural Warning Self-test
Table 501

SELECTOR POSITION	AURAL WARNINGS
A/C OVSP	Clacker
CABIN PRESS	Intermittent horn
UNSAFE LDG	Continuous horn

ural Warning Self-test (Cont)
Table 501

SELECTOR POSITION	AURAL WARNINGS
UNSAFE TAKEOFF	Intermittent horn
FLAP LRS	Buzzer

R (4) Turn off electrical power (Ref. 24-00-00) or proceed on
R to functional tests, as required.

6. Aural Warning System Functional Tests

This section contains the following aural warning system functional tests:

Unsafe Landing Warning Test (Steady horn) - (Ref. Para. B)

Unsafe Takeoff Warning Test (Intermittent horn) - (Ref. Para. C).

On aircraft 001-031 with SB27-174, See 27-31-00 for elevator drive warning system

Flap Load Relieving System Inoperative Warning Test (Buzzer) - (Ref. Para. D).

Unsafe Cabin Pressure Warning Test (Intermittent horn) (Vacuum Test Warning Horn Aneroid) - (Ref. Para. E)

Aircraft Overspeed Warning Test (Clacker) - (Ref. Para. F)

Altitude Alert Warning Test (Musical C-chord) - (Ref. Para. G)

Functional Check Autopilot Disconnect Warning (Wailer) (Ref. Para. H).

Galley Smoke Warning Test (Alternating Tone) - (Ref. Para. I)

A. Preparation

(1) Turn on electrical power (Ref. 24-00-00).

(2) On FE/SO ECS MONITOR panel, zone 215, ensure AVIONIC AIR - FWD and MID LO FLO lights are out.

(3) On pilots overhead circuit breaker panel CB1, zone 210, verify that the following circuit breakers are closed:

AIR DATA CMPTR (G8)

AIR DATA CMPTR (G27)

INSTR CMPRN MON PWR (D8)

ALT SOURCE SEL

CAPTS INSTR (E1)

F/O INSTR (E2)

VERT SP IND (E4)

CAPT SECOND ALTM (E9)

CAPT SECOND ALTM (E27)

CAPT

IAS/MACH (F1)

ALTM (F4)

F/O IAS/MACH (F19)

SAT/TAS (F27)

MISC - AURAL WARN

TEST & RESET (L6)

OVSP (L7)

MULT SND (L8)

PROX SW PWR

NO. 1 (L10)

NO. 4 (L11)

ALT ALERT-1 (K27)

ALT ALERT-2 (J21)

FCES COMPUTERS

DC (B4)

AC & L AOA (B5)

AVIONICS FLIGHT CONTROL SYSTEM NO. 1 SYSTEMS

PITCH & ROLL (A6)

TRIM AGMT AC (A7), DC (A8)

AVIONICS FLIGHT CONTROL SYSTEM NO. 2 SYSTEMS

PITCH & ROLL (A24)

TRIM AGMT AC (A25), DC (A26)

R On aircraft with SB27-174,
NO. 1 AFT COUPLER (B9)

On Flight Engineer/Second Officers overhead circuit breaker panel CB2, zone 215, verify that the following circuit breakers are closed:

T/O AURAL WRNG (H7)

RUDDER SERVO

A (K12)

B (K13)

C (K14)

RUDDER MECH LMTR

A (K15)

B (K16)

FLAP LOAD RELIEF

CHAN-1 (H12)

IND (H13)

FLAP LOAD RELIEF CHAN-2 (H20)

R AOA (F1)

AFCS WARNING

CAPT (K18)

F/O (K19)

On Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215, verify that the following circuit breakers are closed:

PROXIMITY SWITCH

2 (H3)

3 (H4)

(4) On pilots overhead circuit breaker panel CB1, open and tag circuit breaker RAT AUTO DEPLOY (L3).

B. Unsafe Landing Warning Test (Steady Horn)

CAUTION: CONFIRM THAT NOSE AND MAIN LANDING GEAR SAFETY PINS ARE IN PLACE. MAKE CERTAIN THERE IS NO SYSTEM HYDRAULIC PRESSURE.

(1) Perform preparation, Paragraph 6A.

(2) On pilots overhead circuit breaker panel CB1, verify that circuit breakers LANDING GEAR - WARN - HORN (L12) and AIR - DATA - CMPTR (G8) are closed.

(3) In flight station, verify the LANDING GEAR control lever is in DOWN position.

(4) Insert deactuator target (Ref. 20-31-01) between proximity switch sensor and downlock target of either main landing gear.

NOTE: Intermittent horn will sound unless aircraft is in simulated airborne mode.

(5) On pilots center console, advance three engine power control levers to full forward position.

(6) Position flap handle to 22 degree detent. Unsafe landing (steady) horn is silent.

(7) Position flap handle to 33 degrees detent; horn sounds.

(8) On pilots center console, press GEAR HORN CUTOUT switch. Horn continues to sound.

(9) Position flap handle to 22 degrees detent; horn is silent.

R (10) In Forward Electronic Service Center (FESC), depress
R and hold ADC-1 SELF TEST pushbutton. Allow computer
R servos to slew up until 220 (±10) knots is displayed on

AIRSPEED/MACH INDICATOR, do not release SELF TEST pushbutton; horn is silent.

(11) Retard any one power lever to idle position; horn is silent.

(12) Release SELF TEST pushbutton and allow ADC-1 servos to slew down. At approximately 180 knots horn sounds.

(13) Press GEAR HORN CUTOUT switch; horn is silenced.

(14) Position power lever full forward; horn is silent.

(15) Remove target from main landing gear downlock proximity sensor; horn is silent.

(16) Position power levers full aft; horn is silent.

(17) Position flap handle full forward (0 detent); horn is silent.

C. Unsafe Takeoff Warning Test (Intermittent Horn)

WARNING: VERIFY THE FOLLOWING BEFORE PRESSURIZING ANY HYDRAULIC SYSTEM:

LANDING GEAR DOWNLOCK SAFETY PINS AND DOOR SAFETY DEVICES ARE INSTALLED.

TRAVEL AREAS OF ALL FLIGHT CONTROL SURFACES AND MAIN GEAR DOORS ARE CLEAR OF PERSONNEL AND GROUND EQUIPMENT.

R AFFECTED HYDRAULIC SYSTEMS CAN ACCEPT HYDRAULIC PRESSURE.

NOTE: On aircraft with SB27-174, the Elevator Drive Warning is operational when the airplane is on the ground with all power levers fully retarded. A failure of either cable overload sensor results in the unsafe takeoff (intermittent horn) aural warning sounding and the ELEVATOR light coming on.

NOTE: The unsafe takeoff aural warning circuitry is operational when the airplane is on the ground (weight on main landing gear wheels). When any two of the three engine power levers are advanced beyond 50 percent thrust, any one of the following abnormal takeoff configuration situations will cause the intermittent horn to sound. The horn cannot be turned off manually and will remain on until the

situation is corrected.

T/E flaps not in takeoff position.

Pitch trim wheel out of takeoff range.

Slats not fully extended.

R Speed brake lever not in full forward position (spoilers retracted).

(1) Turn on hydraulic systems A and C.

WARNING: ENSURE THAT TRAVEL AREAS OF ALL FLIGHT CONTROL SURFACES ARE CLEAR OF PERSONNEL AND GROUND EQUIPMENT.

(2) At pilots center console, position controls as follows:

(a) Flap handle - 10° detent

(b) Speedbrake control lever - full forward

(c) Stabilizer pitch trim wheel - between 2.5 and 8 degrees

(d) Power control levers - full forward

(3) Unsafe takeoff (intermittent) horn is silent.

(4) On aircraft 001-031 with SB27-174, perform following steps to verify elevator drive warning:

(a) Position power levers full aft.

(b) On pilots overhead circuit breaker panel CB1, open circuit breaker NO. 1 AFT COUPLER (B9) and verify that intermittent horn sounds and ELEVATOR light comes on.

(c) Close CB1(B9) and verify that horn silences and elevator light goes off.

(d) Position power levers full forward.

R (5) Position flap handle to 4° detent; horn sounds.

R (6) Position flap handle to 22° detent; horn sounds.

R (7) Position flap handle to 10° detent; horn is silent.

(8) Adjust Captain (or F/O) pitch trim wheel to less than 2 degrees. Horn sounds.

R NOTE: Horn may sound between 2 and 2.5 degrees, and
R between 8 and 9 degrees in Steps 6C(8) through
R 6C(11).

(9) Increase pitch trim wheel setting and verify that horn is silent between approximate settings of 2.5 and 8 degrees.

(10) Increase pitch trim wheel setting slightly beyond the 9 degree mark and verify that horn sounds.

(11) Decrease pitch trim setting to within normal range of 2.5 to 8 degrees. Horn is silent.

(12) Position SPEED BRAKE lever 0.5 inches (maximum) aft of full forward position. Horn sounds.

NOTE: The 0.5 inches aft movement is measured at the top of the lever slot cover.

(13) With horn sounding, position aluminum targets (Ref. 20-31-01) between left and right main landing gear air/ground sensors and targets. Horn is silent.

(14) Remove targets; horn sounds.

(15) Retard all engine power levers to IDLE. Horn is silent.

(16) Position SPEED BRAKE lever to full forward position. Horn remains silent.

NOTE: A cargo door warning system test circuit is provided to ensure system is properly monitoring the cargo door closed condition before takeoff. Test is accomplished from AURAL WARN TEST panel with all cargo doors closed and latched as they would be in normal service or by using artificial (ferrous metal) targets (Ref. 20-31-01). Normal service configuration is preferred. However, if a door is undergoing maintenance and cannot be closed, place a 0.050 inch ferrous metal target (Ref. 20-30-01) approximately 0.020 inch from the sensor to simulate closed and latched condition.

(17) Verify that forward, center, and aft cargo doors are closed and latched.

(18) On AURAL WARNING TEST panel installed at FE/SO station, position rotary test switch to UNSAFE TAKEOFF position.

(19) Depress and hold TEST switch on AURAL WARNING panel and verify following:

(a) Intermittent horn sounds.

(b) ELEVATOR, FWD CARGO AFT LOCK, CTR CARGO and AFT CARGO lights on FE/SO annunciator panel come on.

(c) DOOR OPEN annunciator light on pilots center instrument panel comes on.

(20) Release TEST switch and verify that ELEVATOR, FWD CARGO AFT LOCK, CTR CARGO and AFT CARGO annunciator lights go off. DOOR OPEN light may remain on. If no door is open, the door open light will go out. Horn is silent.

(21) If door open light is on, depress and release annunciator panel RESET pushbutton on pilots center instrument panel. Verify that DOOR OPEN light goes off.

D. Flap Load Relieving System Inoperative Warning Test (Buzzer)

NOTE: Hydraulic power is required for Step D, Flap Load Relieving System Malfunction Test (Buzzer).

NOTE: Test results will be invalid unless normal hydraulic power is supplied to the flap system (25 gpm at 3000 psi). Do not use AC pumps; use ATM's with APU or shop air, or use ground hydraulic sources.

(1) Verify that flaps are full up.

(2) In the FESC, locate flap load relieving system (LRS) computer on center rack, shelf 1. On LRS computer place switch in RESET position for 5 seconds, then back to RUN.

(3) In the FESC, locate CADC 1 and 2 on rear avionics rack, shelf 5. Simultaneously depress self-test button on both CADC's and hold.

NOTE: If FLAP LRS INOP light on caution and warning panel comes on, release self-test buttons on CADC's, rotate LRS computer BITE selector switch to RESET for 5 seconds, and then back to RUN. Repeat Step 3.

WARNING: ENSURE THAT TRAVEL AREAS OF SLATS AND FLAPS ARE CLEAR OF PERSONNEL AND GROUND EQUIPMENT.

(4) Position flap control handle to full flaps. Flaps must extend only to 28 degrees. (Flap position now corresponds to LRS position on flap position indicator).

(5) Release one CADC self test button. Verify that after a maximum time of 2 minutes, the FLAP LRS INOP light on the caution/warning panel flashes for 10 seconds, then comes on steady, Light will remain on.

(6) On flap LRS override switch on pedestal, verify that LRS INOP legend comes on.

(7) Verify that aural warning buzzer tone sounds for 2 seconds.

(8) Release other CADC self test button.

(9) FLAP LRS INOP Light on caution and warning panel is on, rotate LRS computer BITE selector switch to RESET for 5 seconds, and then back to RUN. Verify that FLAP LRS INOP light is off.

(10) Turn off hydraulic power (Ref. 29-11-00).

E. Unsafe Cabin Pressure Warning Test (Intermittent Horn) (Vacuum Test Warning Horn Aneroid)

(1) Remove screws securing aural warning unit to bracket on underside of Flight Engineer/Second Officers desk. Slide aural warning unit from bracket to gain access to pressure-sensing orifice on top surface of unit.

NOTE: The pitot-static pressure test set is used to provide a vacuum source for the test outlined in the following steps. A hose is provided in the pitot-static adapter kit to connect the test set to the vacuum sensing orifice on the aural warning unit.

CAUTION: ALTITUDE ADJUSTMENTS REQUIRED THROUGHOUT THIS PROCEDURE ARE TO BE MADE SLOWLY AND GRADUALLY TO PREVENT DAMAGE TO TESTER AND/OR AURAL WARNING UNIT PRESSURE SENSOR.

(2) Turn on test set and while holding hose in place against pressure-sensing orifice slowly adjust altimeter knob on tester for an indication of 10,000

feet. Verify that intermittent horn sounds at 10,000 (±500) feet.

(3) Depress HORN CUTOUT pushbutton switch on Flight Engineer/Second Officers ECS panel and verify that horn is silent.

(4) Slowly decrease vacuum (increase pressure) until altimeter on test set indicates approximately 7,500 feet. Slowly increase vacuum until altimeter indicates 10,000 feet. Verify that horn sounds at an altitude of 10,000 (±500) feet.

(5) Slowly decrease vacuum until horn becomes silent. Verify that horn is silenced at an altitude of 8,200 (±500) feet.

(6) Slowly decrease test set altimeter knob to minimum altitude. Turn off test set. Stow test gear in containers. Position aural warning unit on bracket and secure with screws.

F. Aircraft Overspeed Warning Test (Clacker)

(1) Perform air data computer self-test (Ref. 34-14-00), and verify that aural warning unit emits clacker sound.

NOTE: Because of tolerance differences in airspeed/Mach indicator and air data computer, air data computer self-test may not generate an airspeed warning signal. In this case perform airspeed warning check by pressurizing the pitot-static system.

(2) Connect pitot static pressure test set and pitot-static adapter kit to pitot static pressure system of aircraft (Ref. 34-14-00).

CAUTION: ALTITUDE AND AIRSPEED ADJUSTMENTS REQUIRED THROUGHOUT THIS PROCEDURE ARE TO BE MADE SLOWLY AND GRADUALLY TO PREVENT DAMAGE TO TESTER AND/OR AIRCRAFT SYSTEM COMPONENTS.

(3) Slowly adjust test set for an indication of 6,000 feet on test set altimeter.

(4) Slowly adjust airspeed on test set to provide an indication of 360 knots airspeed on air data tester indicator. Verify that clacker does not sound.

CAUTION: DO NOT PERMIT CLACKER TO OPERATE FOR MORE THAN 5 MINUTES. ALLOW CLACKER CIRCUITS TO COOL FOR AT LEAST 15 MINUTES FOR EACH 5 MINUTES OF OPERATION.

(5) On pilots overhead circuit breaker panel CB1, zone 210, open circuit breaker CAPT - IAS - MACH (F1).

(6) Slowly increase airspeed on test set until clacker sounds, and verify that the airspeed indication is 373 knots or less.

(7) On pilots overhead circuit breaker panel CB1, zone 210, open circuit breaker F/O - IAS - MACH (F19). Clacker is silenced.

(8) Close CAPT - IAS - MACH (1F1) circuit breaker. Clacker sounds.

(9) Slowly decrease airspeed until clacker is silenced, and verify that test set indicator indicates 360 knots or more.

(10) Slowly decrease altitude and airspeed to minimum readings. Turn off test set and disconnect test gear. Replace test gear in containers.

G. Altitude Alert Warning Test (Musical C-chord)

(1) Set Captains and F/O barometric altimeters to local barometric pressure.

(2) On altitude select panel located on glareshield panel, zone 210, set NORM-STBY switch to NORM.

(3) On altitude select panel, set ALTITUDE SELECT to 2000 feet above Captains barometric altimeter indication.

(4) On altitude select panel, depress and hold TEST switch (for duration of test).

(5) On altitude select panel, slowly reduce ALTITUDE SELECT and verify the following:

(a) At 1000 (±100) feet above Captains barometric altimeter indication, Captains and F/O APPROACH lights come on.

(b) At 500 (±100) feet above barometric altimeter indication, 1/2-second musical C-chord sounds.

(c) At 250 (±100) feet above barometric altimeter indication, APPROACH lights go out and ALTITUDE lights come on.

(d) At 250 (±100) feet below barometric altimeter indication, ALTITUDE lights go out and 1/2-second musical C-chord sounds.

(e) At 500 (±100) feet below barometric altimeter indication, DEVIATION lights begin flashing.

(6) Reset ALTITUDE SELECT to less than 500 feet below barometric altimeter indication, and verify that DEVIATION lights go out.

(7) On altitude select panel, release TEST switch and set NORM-STBY switch to STBY.

(8) Repeat Steps 3 through 6 using F/O barometric altimeter indication.

H. Functional Check Autopilot Disconnect Warning (Wailer)

(1) On APFDS ENGAGE panel, zone 210, place either A or B autopilot engage lever to CWS or CMD position.

(2) Depress and release A/P REL switch on Captains or First Officers control wheel. Verify that aural warning box emits wailing sound for 2 seconds and AP DISC messages (steady) and ALERT light (flashing) on AFCS WARNING indicators come on.

(3) Depress and release A/P REL switch and verify that AP DISC messages and flashing ALERT light go off.

(4) Place other autopilot engage lever to CWS or CMD position and repeat Step 2 and 3.

I. Galley Smoke Warning Test (Alternating Tone)

(1) On Galley Left Circuit Breaker Panel, ensure that GALLEY SMOKE DETECT circuit breaker is closed.

(2) Locate GALLEY SMOKE test and warn panel adjacent to AURAL WARN TEST panel on FE/SO upper panel.

(3) Actuate TEST - HORN CUTOUT switch up to the TEST position. Verify that GALLEY SMOKE caution light comes on and aural warning alternating tone sounds.

(4) Release TEST - HORN CUTOUT switch to center position. GALLEY SMOKE light will go off. Aural warning continues to sound.

NOTE: Aural warning will sound for approximately 30 seconds and go off automatically unless TEST - HORN CUTOUT switch is previously actuated to the HORN CUTOUT position.

(5) Actuate TEST - HORN CUTOUT switch to HORN CUTOUT position. Aural warning alternating tone is silenced.

(6) Release TEST - HORN CUTOUT switch to center position.

J. Completion

(1) Turn off electrical power (Ref. 24-00-00).

(2) Remove tag and close circuit breaker RAT AUTO DEPLOY (L3) on panel CB1.

PROXIMITY SWITCH CARD BOX - REMOVAL AND INSTALLATION

R 1. General

R The following procedures are to be used to remove and install the Proximity Switch Card Box or an individual switch card. Perform the BITE check outlined in 31-22-00, 101 before changing the switch card box.

R 2. Referenced Procedure

31-22-00 Proximity Switch System - Fault Isolation

R 3. Removal/Installation

A. Removal

(1) On pilots overhead circuit breaker panel CB1, zone 210, open and tag the following circuit breakers:

R LANDING GEAR - PROX - SW PWR - NO. 1 (L10),

R LANDING GEAR - PROX - SW PWR - NO. 4 (L11),

R LANDING GEAR - DOOR - POSN - IND (L13),.

On Flight Engineer/Second Officers overhead circuit breaker panel CB2, zone 215, open and tag the following circuit breakers:

R GROUND SERVICE - MLG - GND - SENSE (L8),

R GROUND SERVICE - (Delta) P - RSVR - & TEMP IND
R (L9).

On Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215, open and tag the following circuit breakers:

R POSN IND - LE - SLAT (K17),

R DOOR - WARN - LT (H2),

R PROXIMITY - SWITCH - 2 (H3),

R PROXIMITY - SWITCH - 3 (H4),

R IND LT - RAT (G10).

(2) Gain access to proximity switch card box in mid electrical service center, zone 137 (Ref. Fig. 401).

(3) Disconnect five electrical connectors.

(4) Remove mounting bolts and remove switch card box.

B. Installation

R (1) Verify that circuit breakers opened in Step 3A(1) are open and tagged.

(2) Set proximity switch card box in position and install mounting bolts (Ref. Fig. 401).

(3) Connect electrical connectors.

R R (4) Remove tags and close circuit breakers opened in Step 3A(1).

R R (5) Perform Proximity Switch Card Box BITE check (Ref. 31-22-00).

3. Proximity Switch Card Replacement

A. Switch Card

NOTE: Switch cards may be replaced with power on.

(1) Open proximity switch card box (Ref. Fig. 402).

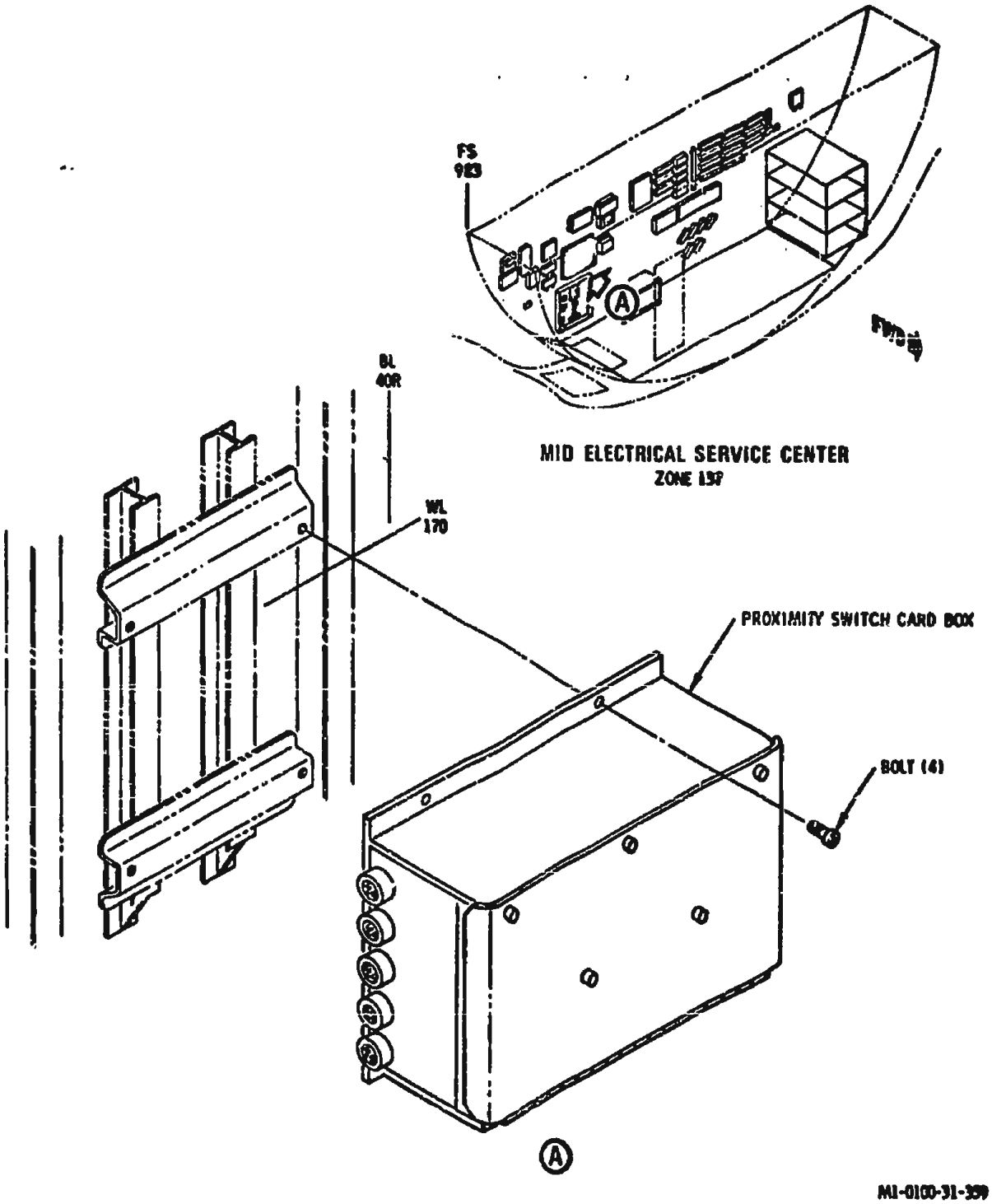
(2) Identify card to be replaced by referring to chart on inside of box cover.

(3) Operate card extractor to disengage electrical pins, then remove card from box.

(4) Insert replacement card and secure in place by operating card extractor to closed position.

(5) Close proximity switch card box.

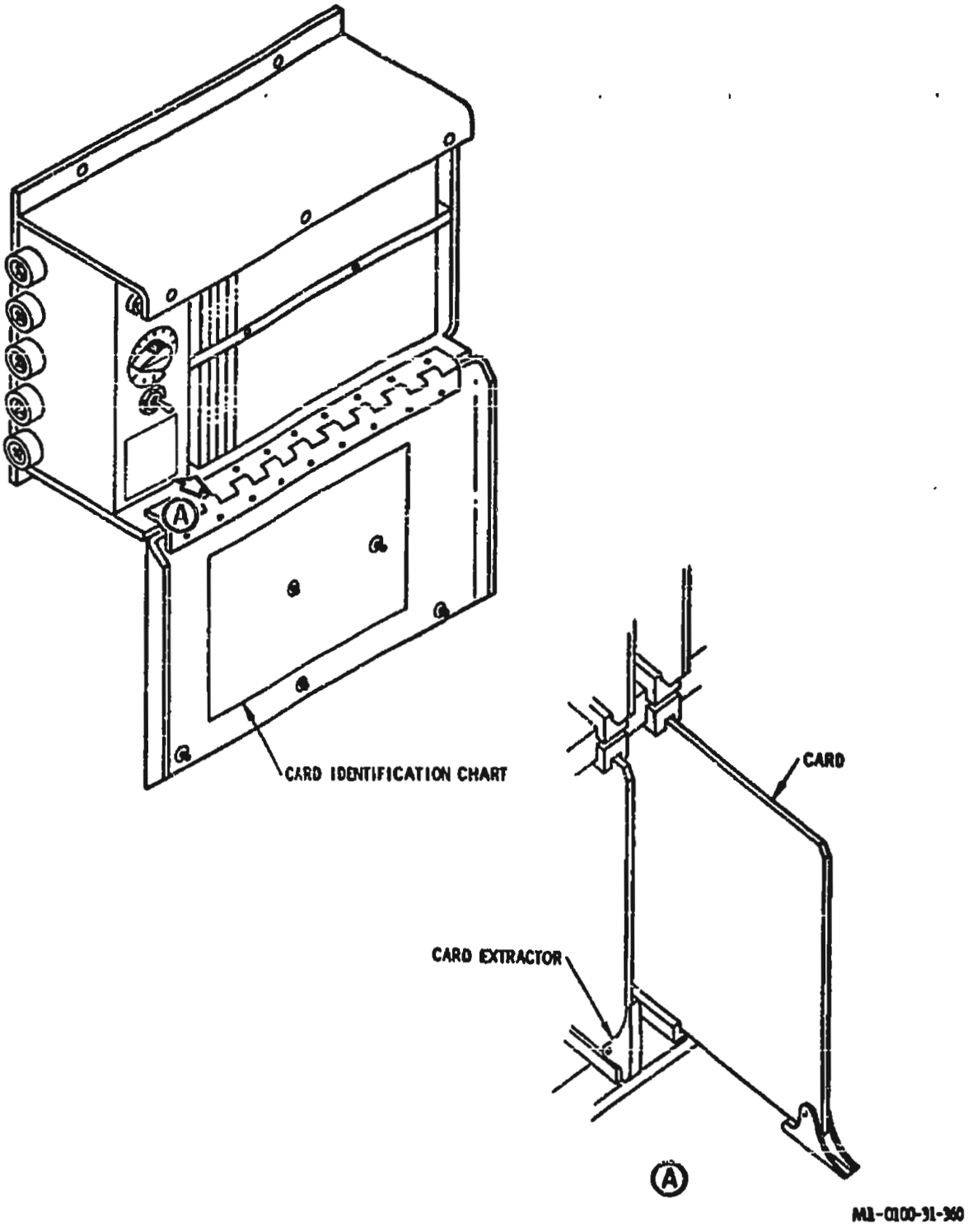
R R (6) Perform Proximity Switch Card Box BITE check (Ref. 31-22-00).



MID ELECTRICAL SERVICE CENTER
ZONE 130

R Proximity Switch Card Box Removal and Installation
R Figure 401

R EFFECTIVITY: ALL
R
001B



R R Proximity Switch Card Replacement
Figure 402

R R EFFECTIVITY: ALL

G01B

PROXIMITY SWITCH LOGIC CARD BOX - REMOVAL AND INSTALLATION

R 1. General

R The following procedures are to be used to remove and install the entire Proximity Switch Logic Card Box or an individual logic card. Perform the BITE check outlined in 31-22-00, 101 prior to changing the entire switch logic card box. The check may isolate the fault to a specific line replaceable card.

R 2. Referenced Procedure

31-22-00 Proximity Switch System - Fault Isolation

R 3. Removal/Installation

A. Removal

(1) On pilots overhead circuit breaker panel CB1, zone 210, open and tag the following circuit breakers:

R LANDING GEAR - PROX - SW PWR - NO. 1 (L10),

R LANDING GEAR - PROX - SW PWR - NO. 4 (L11),

R LANDING GEAR - WARN - HORN (L12),

R LANDING GEAR - DOOR - POSN - IND (L13),

R THRUST REVERSE - ENG - 1 (H16),

R THRUST REVERSE - ENG - 2 (H17),

R THRUST REVERSE - ENG - 3 (H18).

On Flight Engineer/Second Officers overhead circuit breaker panel CB2, zone 215, open and tag the following circuit breakers:

R GROUND SERVICE - MLG - GND - SENSE (L8),

R GROUND SERVICE - (Delta) P - & RSVR - TEMP IND
R (L9),

R INDICATOR - T/O - AURAL - WRN (H7),

R EXTERIOR LIGHTS - NOSE GEAR LT - CONT (G6),

GEAR - TAIL SKID - IND (F13),

GEAR - TRUCK - LEVEL (F16).

On Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215, open and tag the following circuit breakers:

ENG NO. 1 - REV - IND (N4),

ENG NO. 2 - REV - IND (N10),

ENG NO. 3 - REV - IND (N16)

POSN IND - LE - SLAT (K17),

DOOR - WARN - LT (H2),

PROXIMITY - SWITCH - 2 (H3),

PROXIMITY - SWITCH - 3 (H4),

IND LT - RAT (G10).

(2) Gain access to proximity switch logic card box in mid electrical service center, zone 137 (Ref. Fig. 401).

(3) Disconnect three electrical connectors.

(4) Remove mounting bolts and remove logic card box.

B. Installation

(1) Verify that circuit breakers opened in Step 3A(1) are open and tagged.

(2) Set logic card box in position and install mounting bolts (Ref. Fig. 401).

(3) Connect electrical connectors.

(4) Remove tags and close circuit breakers opened in Step 3A(1).

(5) Perform Proximity Switch Logic Card Box BITE check (Ref. 31-22-00).

R CAUTION: THRUST REVERSER CONTROL LOGIC CARD (J6) CONTAINS
R ELECTROSTATIC SENSITIVE COMPONENTS. PRIOR TO
R HANDLING, REFER TO FOLLOWING STEP 3B TO PREVENT
R POSSIBLE DAMAGE DURING REMOVAL/INSTALLATION.

R 3. Logic Card Replacement

R A. Logic Card (except THRUST REVERSER CONTROL - J6)

R NOTE: Logic cards (except THRUST REVERSER CONTROL - J6) may
R be replaced with power on.

(1) Open logic card box (Ref. Fig. 401).

(2) Identify card to be replaced by referring to chart on inside of box cover.

(3) Operate card extractor to disengage electrical pins, then remove card from box.

(4) Insert replacement card and secure in place by operating card extractor to closed position.

(5) Close logic card box.

R B. Thrust Reverser Control Logic Card (J6)

R (1) Prior to removing logic card (J6), remove power from
R the logic card box by opening and tagging the circuit
R breakers listed in Step 3A(1).

R (2) Open logic card box and locate THRUST REVERSER CONTROL
R logic card in position J6 (Ref. Fig. 401).

R CAUTION: PRIOR TO REMOVING OR REPLACING LOGIC CARD J6, A
R GROUND STRAP MUST BE CONNECTED FROM THE LOGIC CARD
R HANDLE TO AIRCRAFT GROUND TO PREVENT DAMAGE TO
R ELECTROSTATIC COMPONENTS ON THE LOGIC CARD. THE
R LOGIC CARD MUST BE TRANSPORTED AND STORED IN A
R CONDUCTIVE BAG.

R (3) Connect ground strap from logic card handle to
R structure.

R (4) Use logic card extractor to disengage electrical pins;
R remove card from box and place in a conductive bag.

R (5) Connect ground strap to replacement card handle and to
R aircraft structure ground. Remove replacement card
R from conductive bag, insert in logic card box, and
R secure in place by operating card extractor to closed
R position (Ref. Fig. 401).

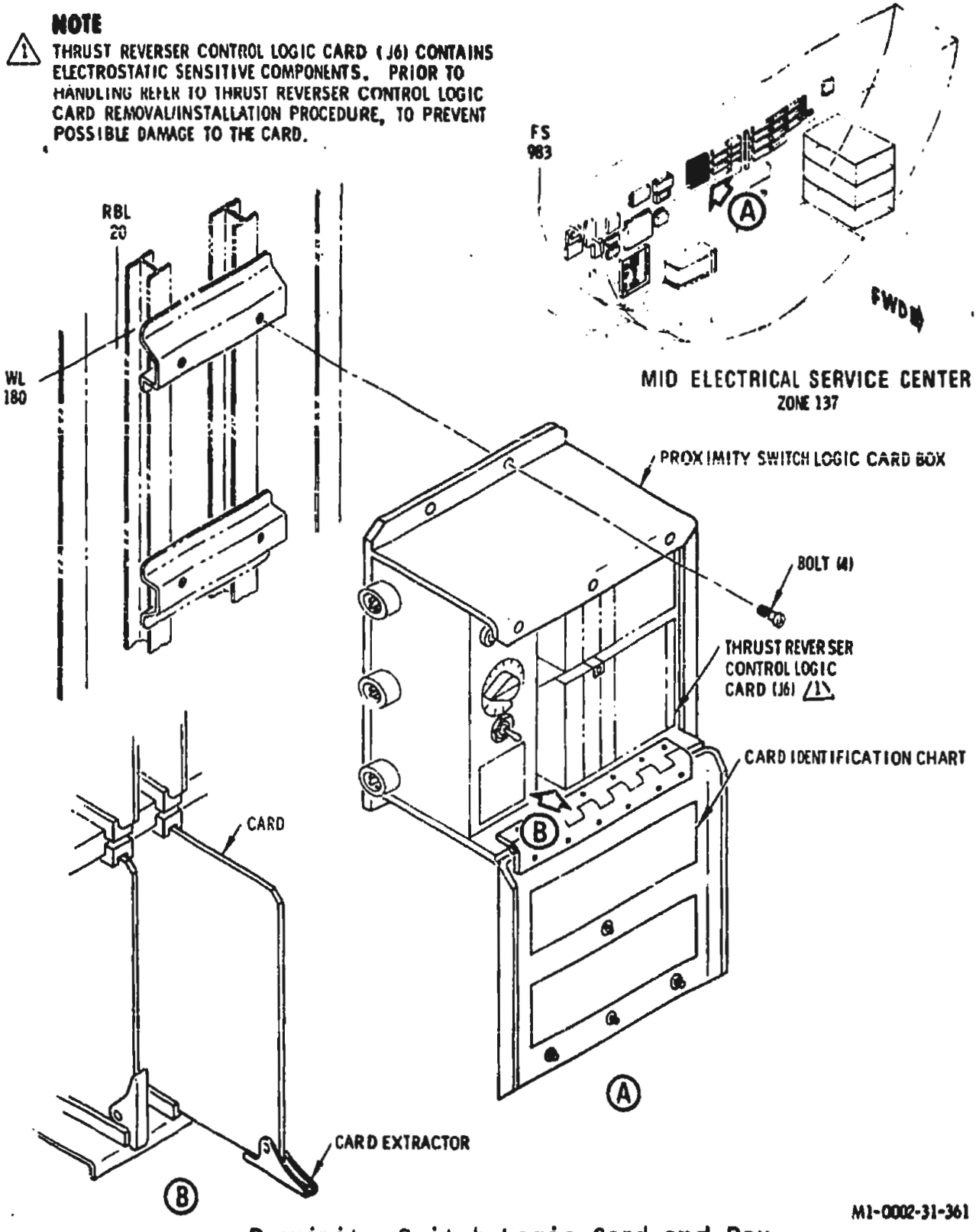
R (6) Remove ground strap and store.

R (7) Close logic card box.

R C. Perform Proximity Switch Logic Card BITE check (Ref.
R 31-22-00).

NOTE

⚠1 THRUST REVERSER CONTROL LOGIC CARD (J6) CONTAINS ELECTROSTATIC SENSITIVE COMPONENTS. PRIOR TO HANDLING REFER TO THRUST REVERSER CONTROL LOGIC CARD REMOVAL/INSTALLATION PROCEDURE, TO PREVENT POSSIBLE DAMAGE TO THE CARD.



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R Proximity Switch Logic Card and Box
R Removal and Installation
R Figure 401

R EFFECTIVITY: ALL
R
001B

AURAL WARNING UNIT - REMOVAL AND INSTALLATION

1. Referenced Procedure

31-22-00 Proximity Switch System/Aural Warning System - Adjustment and Test

2. Removal/Installation

A. Removal

(1) On pilots overhead circuit breaker panel CB1, zone 210, open and tag the following circuit breakers:

MISC - AURAL WARN - TEST - & RESET (L6),

MISC - AURAL WARN - OVSP (L7),

MISC - AURAL WARN - MULT - SND (L8),

(2) Remove bolts securing aural warning unit (Ref. Fig. 401).

NOTE: Aural warning unit is mounted on bracket located on underside of Flight Engineer/Second Officers desk, zone 215.

(3) Disconnect electrical connector and remove aural warning unit.

B. Installation

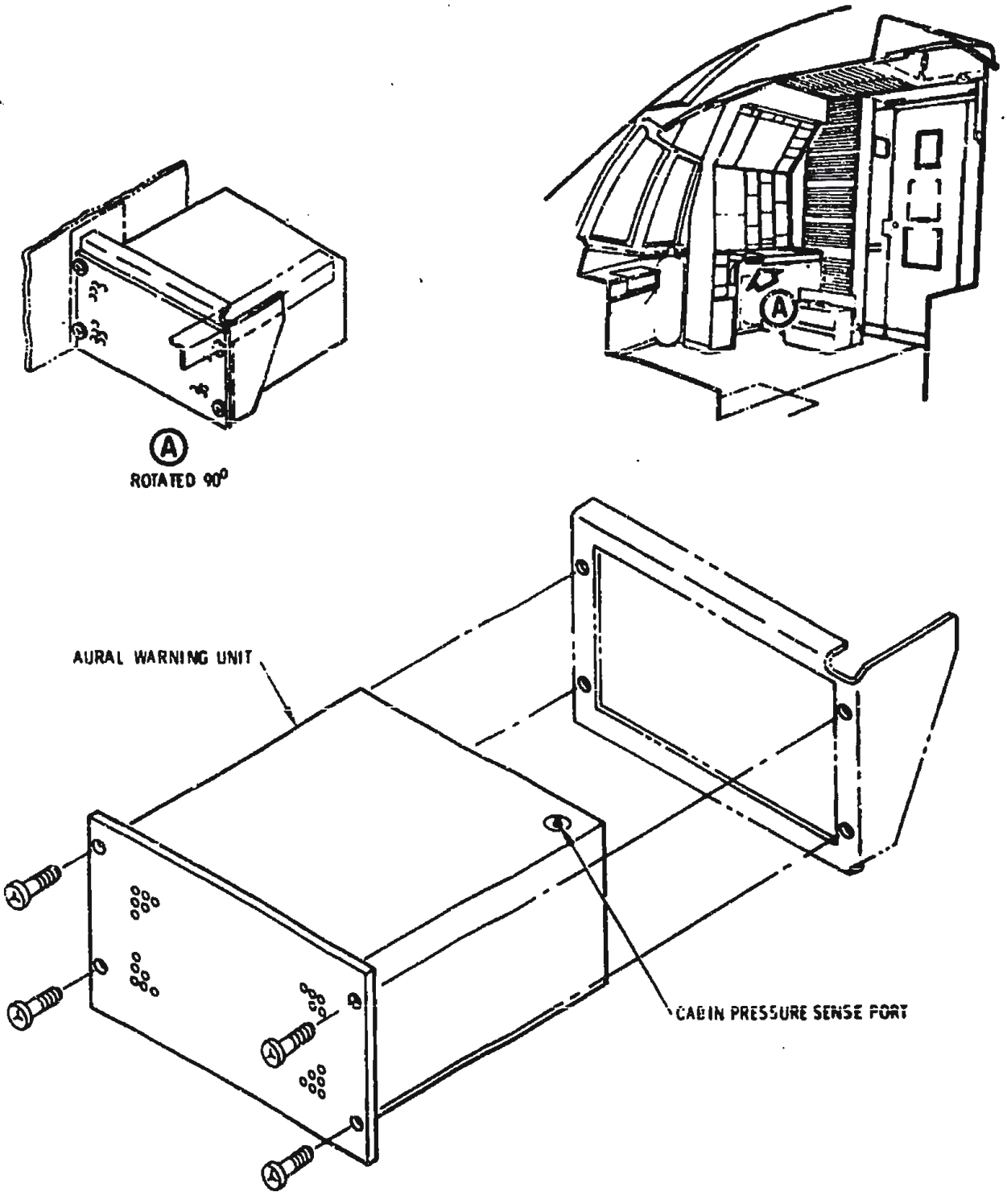
(1) Verify that circuit breakers opened in Step A(1) are open and tagged.

R CAUTION: ENSURE CABIN PRESSURE SENSE PORT IS UNOBSTRUCTED.

(2) Reconnect electrical connector and position aural warning unit on bracket. Secure with bolts.

(3) Remove tags and close circuit breakers opened in Step A(1).

(4) Perform BITE Test and Operational Test portions of the Aural Warning System Adjustment and Test (Ref. 31-22-00).



R Aural Warning Unit - Removal and Installation
R Figure 401

R AURAL WARNING TEST PANEL - REMOVAL AND INSTALLATION

R 1. Referenced Procedure

R 24-00-00 Electrical Power - Maintenance Practices

R 2. Removal/Installation

R A. Removal

R (1) On pilots overhead circuit breaker panel CB1, zone 210, R open and tag circuit breaker MISC - AURAL WARN - TEST & R RESET (L6).

R (2) Locate AURAL WARN TEST panel on Flight Engineer/Second R Officers upper instrument panel, zone 215 (Ref. Fig. R 401).

R (3) Release Dzus fasteners securing test panel to R instrument panel.

R (4) Pull out test panel and disconnect electrical connector R from rear of test panel. Remove test panel.

R B. Installation

R (1) Verify that circuit breaker opened in Step 2A(1) is R opened and tagged.

R (2) Connect electrical connector to AURAL WARN TEST panel.

R (3) Install test panel in instrument panel recess and R secure Dzus fasteners.

R (4) Remove tag and close circuit breaker opened ir Step R 2A(1).

R (5) Perform operational test as follows:

R (a) Turn on electrical power (Ref. 24-00-00).

R (b) On pilots overhead circuit breaker panel CB1, zone R 210, verify that the following circuit breakers R are closed:

R MISC - AURAL WARN

R TEST & RESET (L6)

OVSP (L7)

MULT SND (L8)

(c) On galley left circuit breaker panel, zone 131, verify that circuit breaker GALLEY SMOKE DETECT is closed.

(d) On AURAL WARN TEST panel, set aural warning test selector, in turn, to each position as listed in Table 401 and depress TEST switch. Verify that aural warnings as specified in Table 401 are heard.

Test Selector Positions and Aural Warnings
Table 401

SELECTOR POSITION	AURAL WARNING
A/C OVSP	Clacker
CAB PRESS	Intermittent Horn
UNSAFE LDG	Steady Horn
UNSAFE TAKEOFF	Intermittent Horn
FLAPS LRS	Buzzer

(e) On AURAL WARN TEST panel, place GALLEY SMOKE switch in TEST position and hold. Verify that aural warning alternating tone sounds and GALLEY SMOKE warning light on the panel comes on.

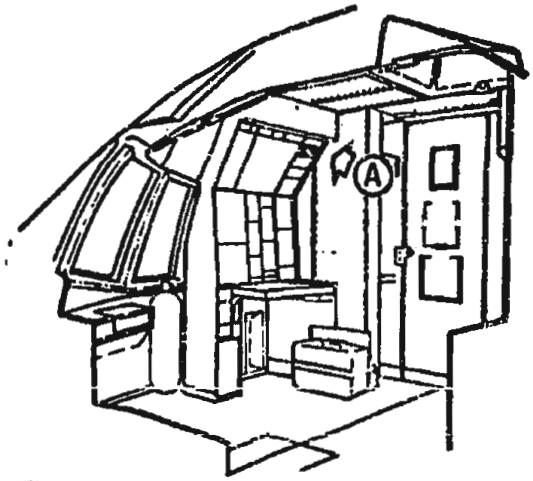
(f) Release switch to center position. Verify that warning light goes off but aural warning continues to sound.

NOTE: Aural warning will sound for approximately 30 seconds after release of the switch and silence automatically unless the switch is previously actuated to the HORN CUTOUT position.

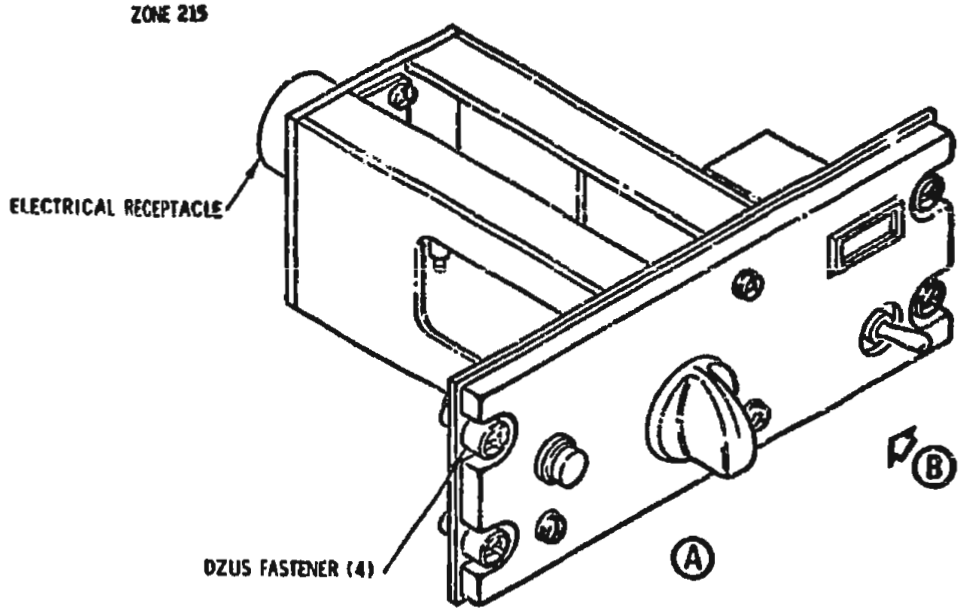
(g) Place switch to HORN CUTOUT position. Verify that aural warning is silenced.

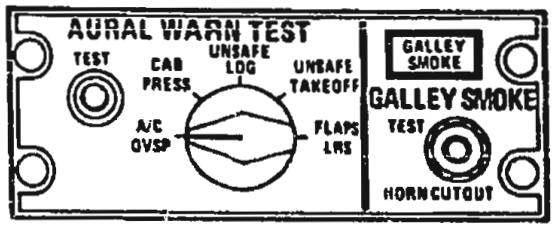
(h) Release switch to center position.

(i) Turn off electrical power (Ref. 24-00-00).



FLIGHT ENGINEER/SECOND OFFICERS STATION
ZONE 215





B

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R Aural Warning Test Panel Removal and Installation
R Figure 401

R EFFECTIVITY: ALL
R
001B

SPEEDBRAKE CONTROL LEVER UNSAFE TAKEOFF AURAL WARNING SWITCH REMOVAL AND INSTALLATION

1. Referenced Procedures

20-00-00 Standard Practices (Wiring Diagram Manual)

24-41-00 External Power/Ground Service system - Maintenance Practices

29-11-00 Hydraulic Power System - Maintenance Practices

2. Removal/Installation

WARNING: VERIFY THAT ALL FOUR HYDRAULIC SYSTEMS ARE SHUT OFF (REF. 29-11-00). TAG FLIGHT ENGINEER/SECOND OFFICERS HYDRAULIC SYSTEM PANEL, ZONE 215, AND THE HYDRAULIC SERVICE PANEL, ZONE 147.

A. Removal

(1) On pilots overhead circuit breaker panel CB1, zone 210, open and tag the following circuit breakers:

R ENGINE - FUEL SHUTOFF - ENG - 1 (F16),

R ENGINE - FUEL SHUTOFF - ENG - 2 (F17),

R ENGINE - FUEL SHUTOFF - ENG - 3 (F18),

R ENGINE - START CONT - ENG - 1 (E13),

R ENGINE - START CONT - ENG - 2 (E14),

R ENGINE - START CONT - ENG - 3 (E15),

R LANDING GEAR - WARN - HORN (L12)

On FE/SO overhead circuit breaker panel CB2, zone 215,
R open and tag circuit breaker INDICATOR - T/O - AURAL -
R WARN (H7).

On FE/SO aft circuit breaker panel CB3, zone 215, open and tag the following circuit breakers:

R ENG NO. 1 - START - IGN - SYS A (N6),

R ENG NO. 2 - START - IGN - SYS A (N12),

R (2) On pilots center console, position speedbrake lever, flap handle, and engine power control levers full forward.

(3) Remove screws holding controls cover to throttle stand. Raise cover up and aft to disengage cover from levers. Lay cover on pedestal. Controls cover remains
R connected to throttle stand by electrical cable (Ref. Fig. 401).

(4) Remove center console left trim panel.

(5) Remove two bolts and nuts holding aural warning switch to bracket.

(6) Disconnect three aural warning switch wires (3318-36A22, 3318-30A22, 3318-29C22) from throttle stand terminal board 9811-TB1121, modules 14, 15, and 16, pin A.

(7) Remove wire cable ties and pull switch wires up through wire clamps. Remove aural warning switch.

B. Installation

(1) Install properly identified and terminated wires (Ref. WDM 20-00-00) to switch before installing switch in aircraft.

If replacement switch does not have a switch actuator, transfer switch actuator from removed switch to replacement switch.

(2) Install aural warning switch on bracket with bolts and nuts. Switch actuator roller must face forward.

(3) Feed switch wires through wire clamps.

(4) Connect switch wires to throttle stand terminal board 9811-TB1121 as shown in Figure 401.

(5) Add wire ties as necessary.

(6) Adjust aural warning switch as follows:

R (a) Verify speedbrake lever is full forward.

(b) Loosen the two bolts that attach switch bracket to throttle stand.

(c) Adjust switch bracket (slotted holes) radially out until switch actuator roller contacts speedbrake lever cam so switch is actuated and overtravel remaining between switch roller and cam is 0.005 to 0.015 inch.

(d) Tighten switch bracket attach bolts. Recheck switch adjustment.

(7) Verify switch operation.

WARNING: VERIFY THAT ALL FOUR HYDRAULIC SYSTEMS ARE SHUT OFF (REF. 29-11-00). TAG FLIGHT ENGINEER/SECOND OFFICERS HYDRAULIC SYSTEM PANEL, ZONE 215, AND THE HYDRAULIC SERVICE PANEL, ZONE 147.

(a) Verify that speedbrake control lever and flap control handle are full forward, pitch trim wheel is at 0 degrees, and engine power control levers are full aft.

CR NOTE: Lever must be manually pushed to the full
CR forward position.

(b) Turn on electrical power (Ref. 24-41-00).

(c) On pilots overhead circuit breaker panel CB1, zone 210, verify that circuit breaker MISC - AURAL WARN - MULT - SND (L8) is closed.

On FE/SO overhead circuit breaker panel CB2, zone 215, remove tag and close circuit breaker INDICATOR - T/O - AURAL - WRN (H7).

On FE/SO aft circuit breaker panel CB3, zone 215, verify following circuit breakers are closed:

PROXIMITY - SWITCH - 2 (H3),

PROXIMITY - SWITCH - 3 (H4).

R WARNING: VERIFY THE FOLLOWING BEFORE PRESSURIZING ANY
R HYDRAULIC SYSTEM:

R LANDING GEAR DOWNLOCK SAFETY PINS AND DOOR

R SAFETY DEVICES INSTALLED.

R TRAVEL AREAS OF ALL FLIGHT CONTROL SURFACES
R AND MAIN GEAR DOORS ARE CLEAR OF PERSONNEL
R AND GROUND EQUIPMENT.

R HYDRAULIC SYSTEMS CAN ACCEPT PRESSURE.

R (d) Turn on hydraulic systems A and C (Ref. 29-11-00).

R (e) Set controls as follows:

Speedbrake lever, full forward

Flap handle, 10 degrees

Pitch trim, between 2.5 and 8 degrees

Power levers, any two full forward

NOTE: Aural warning horn is silent at this time.

R (f) Slowly move speedbrake lever aft until intermittent horn sounds.

NOTE: CONFIG light on CADP and Capt and F/O ALERT lights might come on but are not required for this procedure.

R (g) Move speedbrake lever to full forward position and verify horn is silenced.

(8) Place controls cover on throttle stand. Verify seal lips are outward. Install cover attaching screws.

(9) Remove small access panel on rear of controls cover (below fuel and ignition switches). Verify cover wire bundle is lying behind shield. Reinstall small access panel.

(10) Reinstall center console left trim panel.

(11) Check freedom of movement of speedbrake lever, flap control handle, and power levers by moving all levers back and forth several times to check for binding.

(12) Check takeoff aural warning does not sound under following conditions:

(a) Flaps in takeoff range (10 degrees).

(b) Speed brake lever full forward against stop (0 degrees).

(c) Pitch trim wheel in takeoff range (2.5 to 8 degrees).

(d) Any two (or all three) power levers in takeoff range (full forward).

(13) Slowly move speedbrake lever aft to a point where intermittent takeoff warning horn sounds. Speedbrake lever should be 0.50 inch maximum (measured at top of lever slot cover) aft of full forward position.

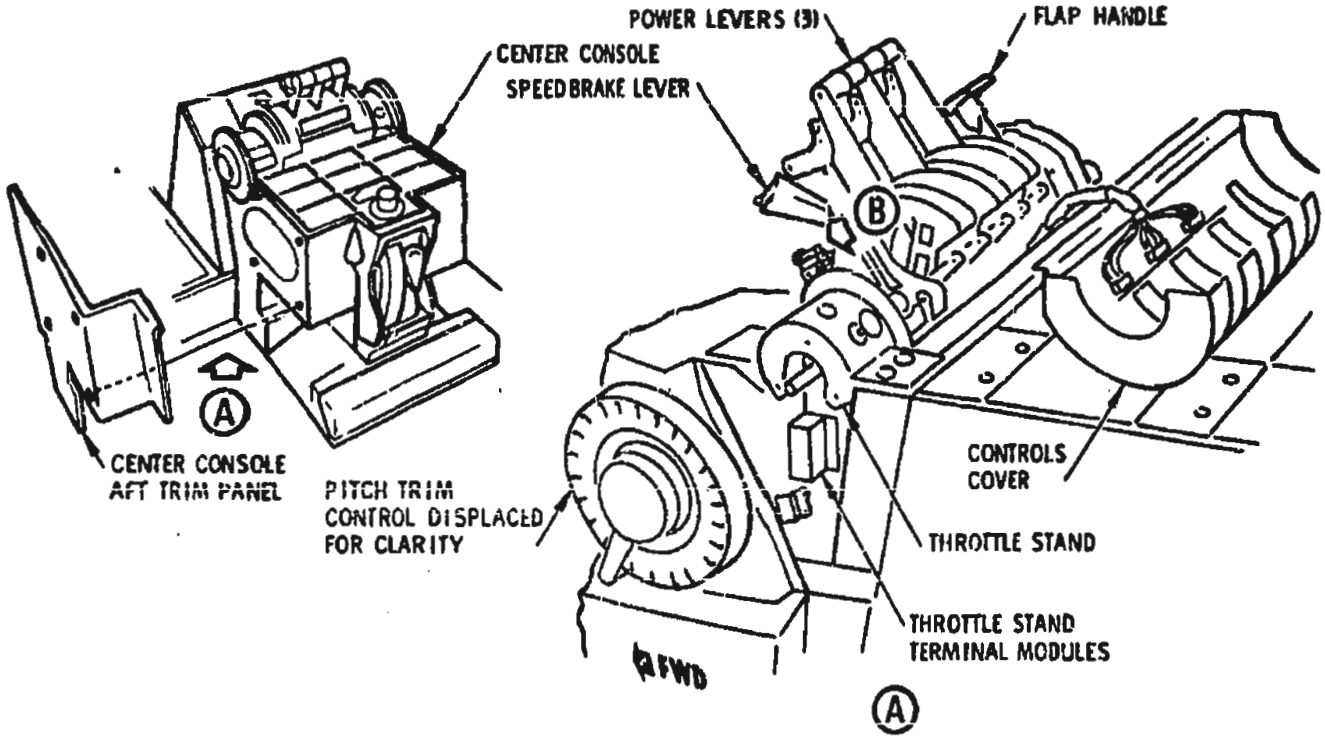
(14) Slowly move speedbrake lever forward. Warning horn must go off before lever reaches full forward position against stop.

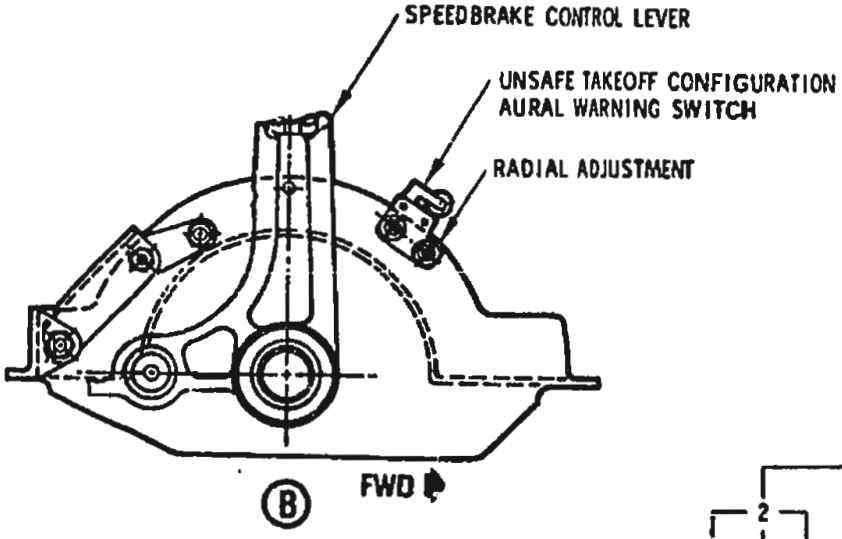
(15) Remove tags from Flight Engineer/Second Officers HYDRAULIC SYSTEM panel, zone 215, and HYDRAULIC SERVICE panel, zone 147.

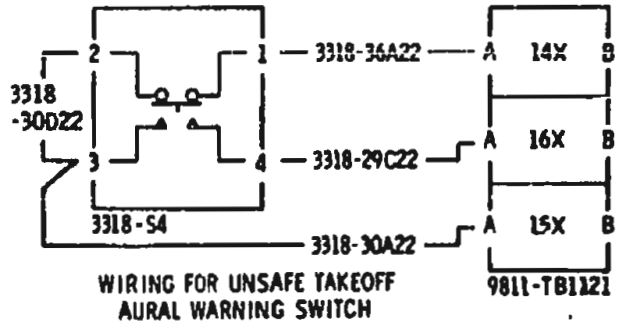
(16) Turn off electrical power (Ref. 24-41-00).

(17) Remove tags and close circuit breakers opened in Step 2A(1).

(18) Position levers and all controls to normal ground position.







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R Speedbrake Control Lever Aural Warning Switch
R Removal and Installation
R Figure 401

SPEEDBRAKE CONTROL LEVER UNSAFE TAKEOFF AURAL WARNING SWITCH REMOVAL AND INSTALLATION

1. Referenced Procedures

20-00-00 Standard Practices (Wiring Diagram Manual)

24-41-00 External Power/Ground Service System - Maintenance Practices

29-11-00 Hydraulic Power System - Maintenance Practices

2. Removal/Installation

WARNING: VERIFY THAT ALL FOUR HYDRAULIC SYSTEMS ARE SHUT OFF (REF. 29-11-00). TAG FLIGHT ENGINEER/SECOND OFFICERS HYDRAULIC SYSTEM PANEL, ZONE 215, AND HYDRAULIC SERVICE PANEL, ZONE 147.

A. Removal

(1) On pilots overhead circuit breaker panel CB1, zone 210, open and tag circuit breakers:

R ENGINE - FUEL SHUTOFF - ENG - 1 (F16),

R ENGINE - FUEL SHUTOFF - ENG - 2 (F17),

R ENGINE - FUEL SHUTOFF - ENG - 3 (F18),

R ENGINE - START CONT - ENG - 1 (E13),

R ENGINE - START CONT - ENG - 2 (E14),

R ENGINE - START CONT - ENG - 3 (E15),

R LANDING GEAR - WARN - HORN (L12).

On FE/SO overhead circuit breaker panel CB2, zone 215,
R open and tag circuit breaker INDICATOR - T/O - AURAL -
R WRNG (H7).

On FE/SO aft circuit breaker panel CB3, zone 215, open and tag circuit breakers:

ENG No. 1 - START - IGN - SYS A (N6),

ENG NO. 2 - START - IGN - SYS A (N12),

(2) On pilots center console, position speedbrake control lever, flap control handle, and engine power control levers full forward.

CAUTION: CONTROLS COVER REMAINS CONNECTED TO THROTTLE STAND BY ELECTRICAL CABLE. DO NOT STRAIN OR TWIST CABLE WHEN HANDLING COVER.

(3) Remove screws holding controls cover to throttle stand. Move cover up and aft to disengage cover from levers. Place cover on pedestal (Ref. Fig. 401).

(4) Remove center console left trim panel.

(5) Disconnect aural warning switch wires (3318-36A22, 3318-30A22, and 3318-29C22) from throttle stand terminal board 9811-TB1121, modules 14.15, and 16, pin A.

(6) Remove aural warning switch from actuator assembly.

(7) Remove wire cable ties and pull switch wires up through wire clamps. Remove aural warning switch from aircraft.

B. Installation

(1) Install properly identified and terminated wires (Ref. WDM 20-00-00) to switch before installing switch in aircraft.

(2) Feed switch wires through wire clamps.

(3) Install switch on actuator assembly.

(4) Connect switch wires to throttle stand terminal board 9811-TB1121 as shown in Figure 401.

(5) Verify switch operation.

(a) Verify that speedbrake control lever and flap control handle are full forward pitch trim wheel is at 0 degrees, and engine power control levers are in full aft position.

R

(b) Turn on electric power (Ref. 24-41-00).

(c) On pilots overhead circuit breaker panel CB1, zone 210, verify that circuit breaker AURAL WARN - MULT - SND (L8) is closed.

On FE/SO overhead circuit breaker panel CB2, zone 215, remove tag and close circuit breaker INDICATOR - T/O - AURAL - WARN (H7).

On FE/SO aft circuit breaker panel CB3, zone 215, verify that the following circuit breakers are closed:

PROXIMITY - SWITCH - 2 (H3),

PROXIMITY - SWITCH - 3 (H4).

WARNING: VERIFY THE FOLLOWING BEFORE PRESSURIZING ANY HYDRAULIC SYSTEM:

R R LANDING GEAR DOWNLOCK SAFETY PINS AND DOOR SAFETY DEVICES INSTALLED.

R R R TRAVEL AREAS OF ALL FLIGHT CONTROL SURFACES AND MAIN GEAR DOORS ARE CLEAR OF PERSONNEL AND GROUND EQUIPMENT.

R HYDRAULIC SYSTEMS CAN ACCEPT PRESSURE.

(d) Turn on hydraulic systems A and C (Ref. 29-11-00).

(e) Set controls as follows:

R Speedbrake lever, full forward

R Flap handle, 10 degrees

R Pitch trim, between 2.5 and 8 degrees

R Power levers, any two full forward

(f) If aural warning (intermittent) horn sounds at this time, turn switch actuation adjusting nut counter-clockwise (looking down) until horn is silenced.

NOTE: Power levers may be moved aft to silence horn while nut is being adjusted.

If aural warning horn does not sound, move speedbrake handle aft until horn sounds then place handle full forward.

(6) Place controls cover on throttle stand. Verify that seal lips are outward. Install cover attaching screws.

(7) Remove small access panel on rear of controls cover (below fuel and ignition switches). Verify that cover wire bundle is lying behind shield. Reinstall small access panel.

(8) Reinstall center console left trim panel.

(9) Check freedom of movement of the speedbrake lever, flap control handle, and power levers by moving all levers back and forth several times to check for binding.

(10) Check that takeoff aural warning does not sound under following conditions:

R Flaps in takeoff range (10 degrees)

R Speedbrake lever full forward (0 degrees)

R Pitch trim wheel in takeoff range (2.5 to 8 degrees)

R Any two power levers in takeoff range (full forward)

(11) Slowly move speedbrake lever aft until aural warning horn sounds.

(12) Verify that no spoilers are deployed greater than one degree (Ref. Table 401).

NOTE: Circuit breaker AURAL WARN - MULT - SND (L8) on pilots overhead circuit breaker panel CB1, zone 210, may be opened to silence aural warning horn during verification of spoiler position. Close circuit breaker before continuing with procedure.

Spoiler Movement Conversion
Table 401

SPOILER No.	TRAILING EDGE UP 1 DEGREE EQUALS INCH MAX.
1(R&L)	0.60
2(R&L)	0.60
3(R&L)	0.50
4(R&L)	0.40
5(R&L)	0.40

Spoiler Movement Conversion (Cont)
Table 401

SPOILER No.	TRAILING EDGE UP 1 DEGREE EQUALS INCH MAX.
6(R&L)	0.375

(13) With no spoiler panel deployed beyond one degree, adjust switch actuator adjusting nut as follows:

(a) To delay silencing of horn on spoiler retraction or advance sounding of horn on spoiler deployment, turn adjusting nut clockwise, looking down.

(b) To advance silencing of horn on spoiler retraction or delay sounding of horn on spoiler deployment, turn adjusting nut counterclockwise, looking down.

NOTE: Three turns of adjusting nut equals approximately one degree of spoiler travel.

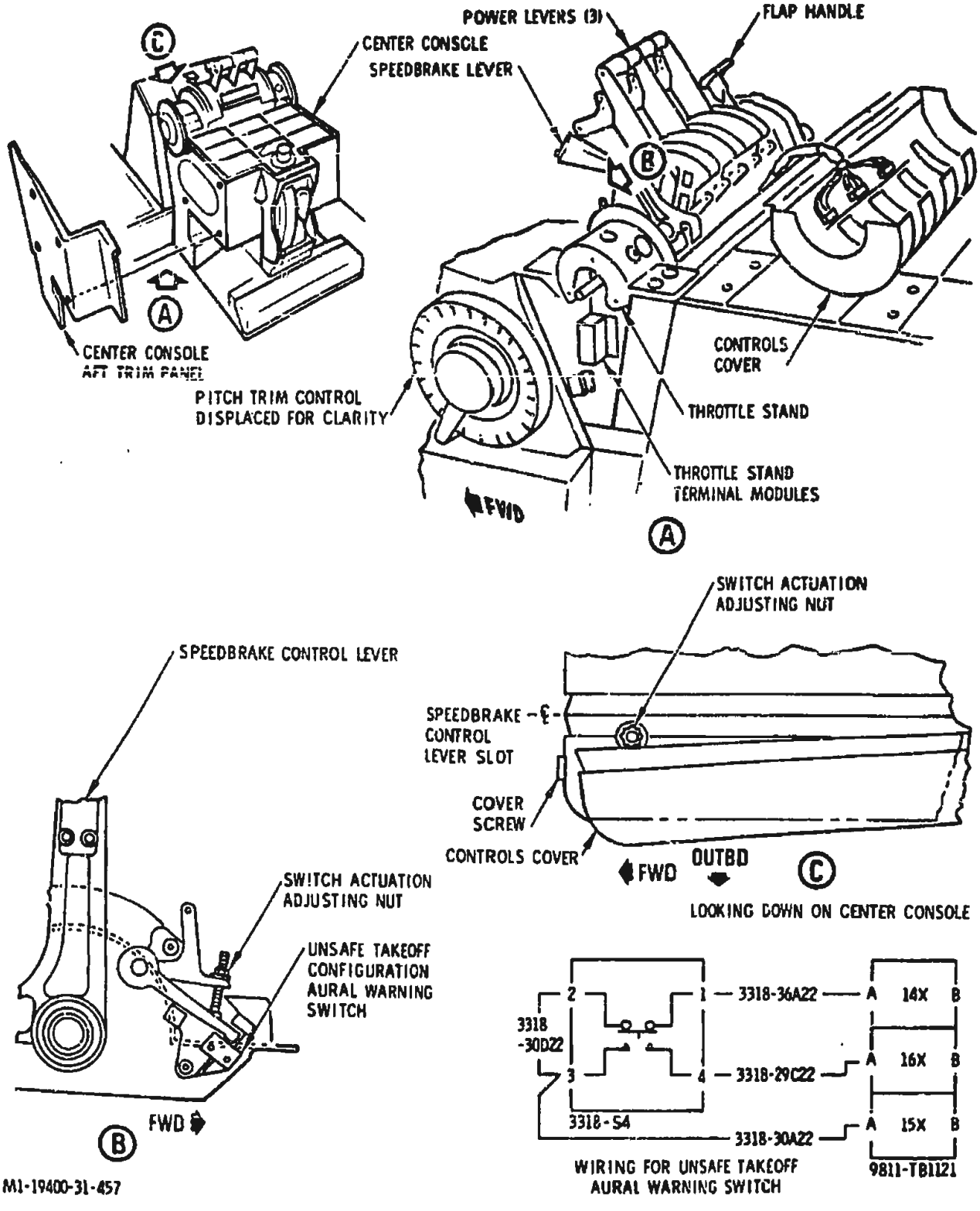
(14) Slowly move speedbrake lever forward. Horn must be silenced before lever reaches full forward position.

(15) Turn off hydraulic system (Ref. 29-11-00).

(16) Turn off electric power (Ref. 24-41-00).

(17) Remove tags and close circuit breakers opened in Step 2A(1).

(18) Position levers and all controls to normal ground position.



Speedbrake Control Lever Aural Warning Switch
Removal and Installation
Figure 401

THROTTLE CONTROLLED AURAL WARNING SWITCHES REMOVAL AND INSTALLATION

1. General

The throttle (engine power control lever) controlled switches, grouped in three identical sections and controlled by real-type cams, are located below the autothrottle clutch assemblies in the forward electronics service center, zone 112. The takeoff aural warning switches 3318-S8 (U1), (U2), and (U3) and landing gear horn (unsafe landing warning) switches 3261-S9 (U1), (U2), and (U3) are included in these switch groups.

The takeoff aural warning switch and landing gear horn switch removal and installation procedures are identical except electrical power removal and post-installation operational test.

2. Referenced Procedures

20-24-02	Crimped Electrical Contact - Removal and Installation
34-44-01	Weather Radar Receiver - Transmitter - Removal and Installation
76-11-06	Throttle Control Switch - Adjustment and Test

3. Removal/Installation

A. Removal

(1) Open and tag the following circuit breakers.

For removing takeoff aural warning switch:

R AVIONICS FLIGHT CONTROL SYSTEM - AUTO - THROT -
R SERVO (A1)on pilots overhead circuit breaker panel CB1, zone 210

R INDICATOR - T/O - AURAL - WARN (H7) on FE/SO overhead circuit breaker panel CB2, zone 215

For removing landing gear horn switch:

R AVIONICS FLIGHT CONTROL SYSTEM - AUTO - THROT -
R SERVO (A1) and LANDING GEAR - WARN - HORN (L12) on pilots overhead circuit breaker panel CB1, zone 210

(2) Open forward electronics service center access door 112AB.

(3) Remove weather radar receiver-transmitters No. 1 and No. 2 from top shelf of forward electronic service center forward rack (Ref. 34-44-01).

(4) Remove drip shield from top of forward rack.

R WARNING: ENSURE THAT ENGINE POWER CONTROL LEVERS ARE NOT OPERATED DURING SWITCH REMOVAL.

(5) Tag engine power control levers.

(6) Locate aural warning switch to be removed in group of reel-type cams below autothrottle clutch assembly (Ref. Fig. 401). Placard located above switch sections identifies switches and their locations.

(7) Release switch arm from cam support assembly by removing screw, spring, and washer.

(8) Rotate switch arm to provide access to switch attaching hardware.

(9) Remove screws, nuts, and washers to separate switch from switch arm.

NOTE: Switch actuator is attached with same hardware as switch, and comes off when switch is separated. Retain for installation.

(10) Tag and disconnect wires from switch (Ref. 20-24-02).

B. Installation

(1) Verify that circuit breakers opened in Step 3A(1) are open and tagged.

R WARNING: ENSURE THAT ENGINE POWER CONTROL LEVERS ARE NOT OPERATED DURING SWITCH INSTALLATION.

(2) Connect wires to switch (Ref. 20-24-02) and remove wire tags.

(3) Orient and position switch actuator on switch arm with mounting holes aligned (Ref. Fig. 401).

(4) Secure switch and switch actuator with screws, washers, and nuts.

R (5) Rotate switch arm back to cam support assembly and
R secure with screw, spring, and washer.

R (6) Verify switch actuation and calibrate switch as
R necessary (Ref. 76-11-06).

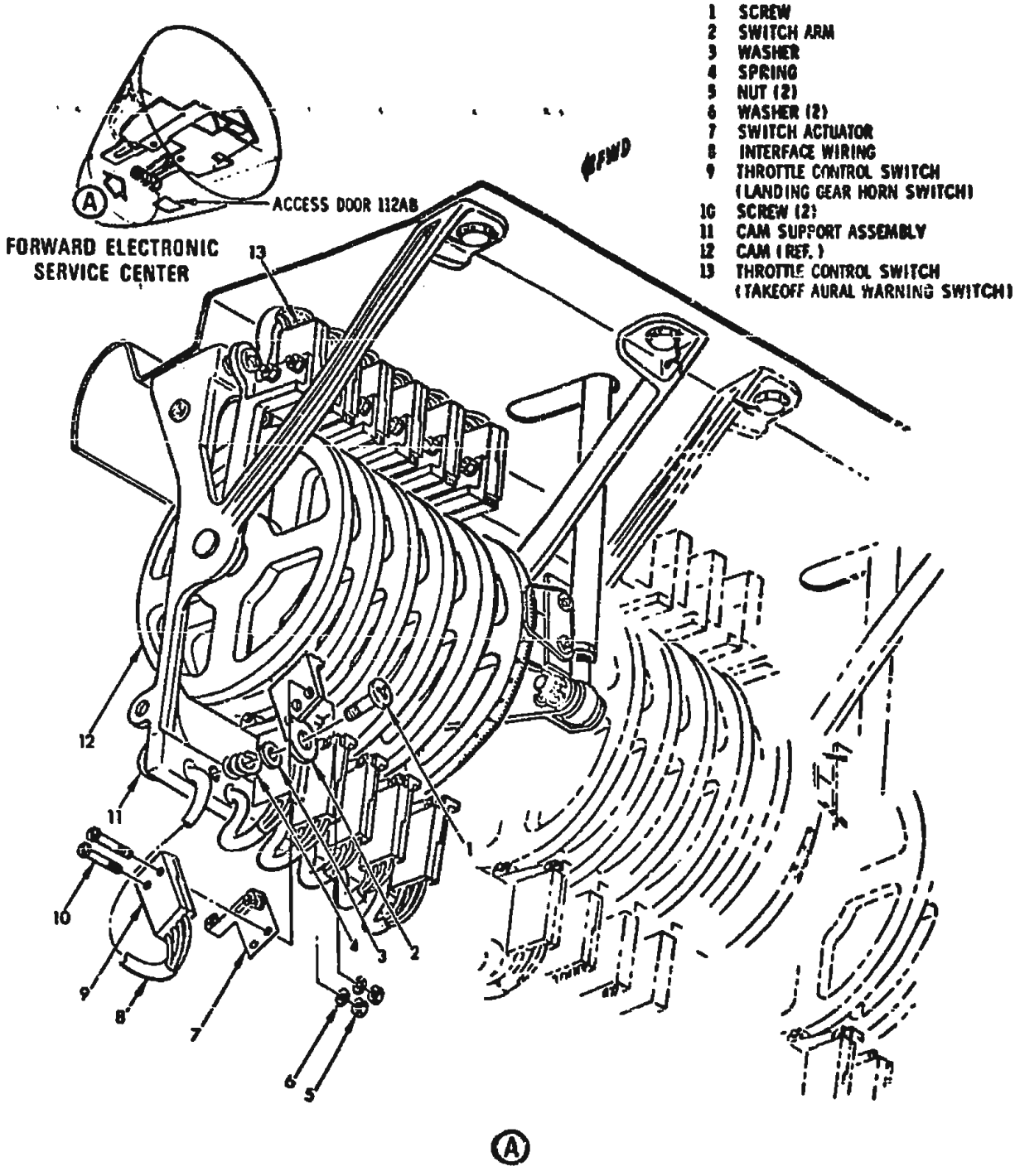
R (7) Install drip shield over forward rack.

R (8) Install weather radar receiver-transmitters No. 1 and
R No. 2 on forward rack (Ref. 34-44-01).

R (9) Close access door.

R (10) Remove tag from engine power control levers.

R (11) Remove tags and close circuit breakers opened in Step
R 3A(1).



M1-0100-31-408

R Throttle Controlled Aural Warning Switch
R Removal and Installation
R Figure 401

R EFFECTIVITY: ALL
R
0018

FLAP LEVER POSITION (UNSAFE LANDING WARNING) SWITCH REMOVAL AND INSTALLATION

1. General

The flap lever position switches, grouped and controlled by real-type cams, are located aft of the flap lever control quadrant near the ceiling of the forward electronic service center, zone 112. The unsafe landing warning switch is located at left end in the forward switch group. The switch is identified as LNDG HORN 2751-S1 on the switch nomenclature placard located adjacent to the switch group.

2. Referenced Procedures

20-24-02	Crimped Contact - Removal and Installation
20-31-01	Proximity Sensor Artificial Target - Maintenance Practices
24-00-00	Electrical Power - Maintenance Practices
27-51-55	Flap Lever Actuated Switch - Adjustment and Test

3. Removal/Installation

A. Removal

R (1) On pilots overhead circuit breaker panel CB1, zone 210, open and tag circuit breaker LANDING GEAR - WARN - HORN (L12).

R WARNING: ENSURE THAT FLAP HANDLE IS NOT OPERATED DURING SWITCH REMOVAL.

(2) Tag flap handle.

(3) Open forward electronic service center (FESC) access door 112AB.

(4) Release switch arm from cam support assembly by removing screw, spring, and washer (Ref. Fig. 401).

(5) Rotate switch arm to provide access to switch attaching hardware.

(6) Remove screws, nuts, and washers to separate switch from switch arm.

NOTE: Switch actuator is attached with same hardware as switch, and comes off when switch is separated. Retain for reinstallation.

(7) Tag and disconnect wires from switch (Ref. 20-24-02).

B. Installation

(1) Verify that circuit breaker opened in Step 3A(1) is open and tagged.

R WARNING: ENSURE THAT FLAP HANDLE IS NOT OPERATED DURING SWITCH INSTALLATION.

(2) Connect wires to switch (Ref. 20-24-02) and remove wire tags.

(3) Orient and position switch actuator, then the switch onto switch arm with mounting holes aligned (Ref. Fig. 401).

(4) Secure switch and switch actuator with screws, washers, and nuts.

(5) Rotate switch arm back to cam support assembly and secure with screw, spring, and washer.

(6) Adjust switch (Ref. 27-51-55).

(7) Close FESC access door 112AB.

(8) Remove tag and close circuit breaker opened in Step 3A(1).

(9) Remove tag from flap handle.

(10) Check switch operation as follows:

(a) Turn on electrical power (Ref. 24-00-00).

(b) On pilots overhead circuit breaker panel CB1, zone 210, verify that the following circuit breakers are closed:

R MISC - AURAL WARN - MULT - SND (L8),

R LANDING GEAR - PROX - SW PWR - NO. 1 (L10),

R LANDING GEAR - PROX - SW PWR - NO. 4 (L11).

On FE/SO aft circuit breaker panel CB3, zone 215, verify that the following circuit breakers are closed:

PROXIMITY - SWITCH - 2(H3)

PROXIMITY - SWITCH - 3(H4)

WARNING: CONFIRM THAT NOSE AND MAIN LANDING GEAR SAFETY PINS ARE IN PLACE.

IF HYDRAULIC POWER IS TURNED ON, ENSURE THAT TRAVEL AREAS OF FLAPS AND SLATS ARE CLEAR OF PERSONNEL AND GROUND EQUIPMENT.

(c) Insert artificial deactuator target (Ref. 20-31-01) between gear downlock sensor and target of either main landing gear.

(d) Advance all engine power control levers to approximately 9/10 full forward.

(e) Position flap handle to 33-degree detent. Verify that steady horn sounds.

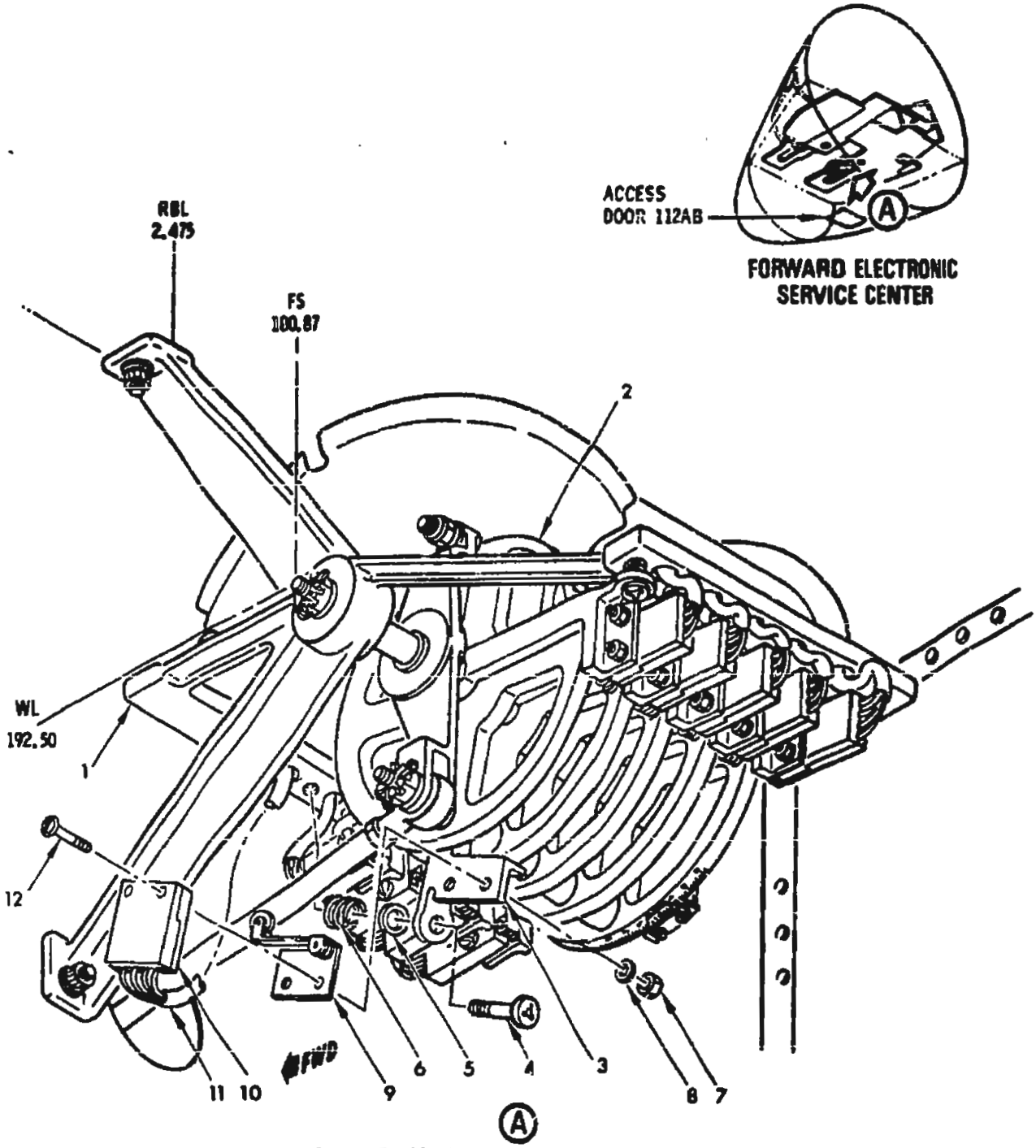
R R (f) Disengage circuit breaker TO Aural Warning (2H7) on FE/SO overhead CB panel. Position flap handle to 22-degree detent. Verify that horn is silenced.

(g) If hydraulic power is on, return flap handle to zero-degree position. If hydraulic power is off, set flap handle to position corresponding to flap R position. Reengage CB 2H7.

(h) Return all engine power control levers to idle.

(i) Remove artificial target from main landing gear downlock sensor.

(j) Turn off electrical power (Ref. 24-00-00).



1	CAM SUPPORT ASSEMBLY	7	NUT (2)
2	CAM (REF.)	8	WASHER (2)
3	SWITCH ARM	9	SWITCH ACTUATOR
4	SCREW	10	SWITCH (UNSAFE LANDING WARNING, 2751-51)
5	WASHER	11	SWITCH WIRING
6	SPRING	12	SCREW (2)

M1-0100-31-402

R Flap Lever Position Unsafe Landing Warning Switch
R Removal and Installation
R Figure 401

R EFFECTIVITY: ALL
R
001B

RECORDERS - DESCRIPTION AND OPERATION

1. General

Data recorders installed on aircraft includes mandatory digital flight data recorder, incremental recorder, and continuous loop recorder. These recorders are part of the Aircraft Integrated Data System/Digital Flight Data Recorder System (AIDS/DFDRS). The computer-controlled Aircraft Integrated Data System continuously samples and records data from selected aircraft systems on a time-sharing basis (Ref. Fig. 1). The digital computer acquires parameters at various rates and at different times during flight from three Data Acquisition Units that accept, condition, and digitize parameters. The AIDS Control Unit enters documentary data and controls manual recording of parameters. AIDS has two specific functions:

A. To sample and format specific data required and record data on Digital Flight Data Recorder.

B. To sample and format data recorded on incremental recorder for subsequent analyses by operator.

Three types of recorders are employed to record aircraft data. The mandatory Digital Flight Data Recorder (DFDR) and Incremental (bulk) Recorder (IR) permanently record data on magnetic tape during selected time periods. The IR operates only when instructed by the Central Electronics Unit (CEU). The CEU receives, processes, and finally transmits digital data, selected by parameter list to the DFDR. The DFDR records data selected during the most recent 25-hour period of AIDS operation. The 5-minute Continuous Loop Recorder (CLR) stores data from all monitored systems during most recent 5-minute period in a semi-conductor memory. The CLR operates continuously as long as AIDS is operational and serves functionally as a 5-minute store of information to be recorded on the IR when MANUAL RECORD is pressed.

When problems develop in aircraft systems being monitored, the AIDS retains a permanent record of associated parameters for subsequent trouble detection and analysis. Recording starts by dialing in system (and sub-system if applicable) through selector switches, and pressing MANUAL RECORD pushbutton switch on AIDS Control Unit located on Flight Engineer's control panel. When recording begins, parameters are transferred from the CLR to IR through the CEU. This allows data sampled approximately five minutes prior to fault indication to be retained for analysis.

The system also provides necessary mechanization and control to enable trending information (trend data set) to be recorded directly on the IR. The length of time is program-adjustable for trend data set. AIDS is programmed to sense occurrence of certain selected events required for trend analysis, implement required data processing, and contains recorder control circuits necessary to automatically and permanently record data.

The Control Unit provides means of defining and controlling system data parameters to be recorded. The Control Unit also provides means of entering flight identification data into CEU for processing by means of thumbwheel switches. The flight identification data consists of date, takeoff gross weight, flight number, flight leg number, and pilot's identification number. The CEU transfers flight identification data to CLR prior to each data storage scan and to IR during recording of trend data.

Aircraft signals selected for sampling are routed to three Data Acquisition Units (DAU's), which convert data and route to CEU for processing. Sensor outputs are routed to DAU unit closest to the signal source. Each DAU contains necessary circuitry to acquire 40 ac signals (including synchro outputs), 80 dc signals, 64 discrete (on/off type) signals, and 8 low frequency (vibration) signals.

Applied signals are preconditioned, multiplexed, converted into standard digital format, and then transmitted to the CEU for processing. During multiplexing, CEU-controlled switches allow only one selected parameter at a time to be processed by AIDS. Three DAUs are physically and functionally identical, and are interchangeable between locations on the aircraft.

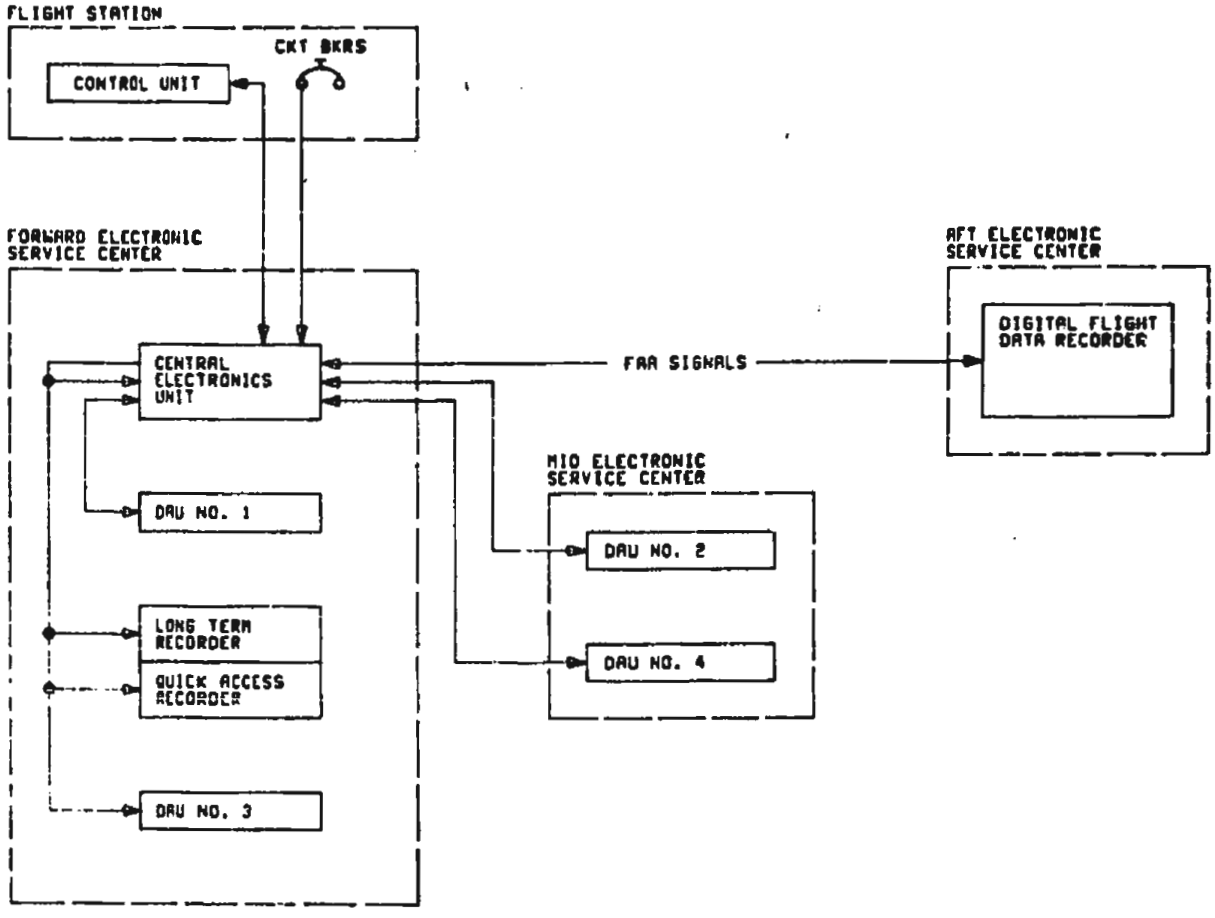
AIDS/DFDRS, on aircraft 001-031, were initially provided with over 300 signals. On aircraft 032-999, 180 signals are provided to DAUs. The CEU provides necessary electronics and memory to process digital data from AIDS Control Unit and three DAUs. CEU then provides scaling and formatting necessary to supply data in suitable form for the recorder units. GMT clock circuits located within the CEU provide real time clock signals for CEU processing. Each recorded set of parameters is accompanied with GMT when they were acquired. GMT digital display and associated control are provided on front panel of CEU to aid in monitoring and resetting the GMT clock. Also mounted on the front panel of CEU are controls and indicators for initiating and monitoring a self-test of AIDS. The indicators, one for each unit of AIDS, serve to fault isolate malfunctions to an AIDS unit.

Aircraft primary power supplies AIDS through circuit breaker and 45-second time-delay relay (delayed opening only). Time-delay relay provides for automatic, delayed AIDS shutdown of AIDS 45 seconds after aircraft engines have been shut down. The delay

in AIDS shutdown permits completion of one 30-second scan of engine shutdown parameters (used for trend analysis).

A power relay logic circuit within the CEU senses positions of three Fuel Shutoff Valve relays. Each relay energizes when respective Fuel Shutoff switch is set to ON, and de-energizes when all three switches are set to OFF. There is no power relay time delay when energized; only when de-energized.

A START OVERRIDE switch, sensed by the power relay logic circuit, permits AIDS to be energized for self-test without starting engines. FLT RCDR Switchlight, located on Waste Water Control Panel, applies power through switchlight to Flight Recorder.



A1-0008-31-827

Aircraft Integrated Data System/Digital Flight Data Recorder System (AIDS/DFDRS) Block Diagram
Figure 1

DIGITAL FLIGHT DATA RECORDER (DFDR) SYSTEM DESCRIPTION AND OPERATION

1. General

The DFDR system (Ref. Fig. 1) operates in conjunction with the central electronics unit (CEU), which is a component of the aircraft integrated data system (AIDS) (Ref. 31-32-00). The DFDR accepts digital data in serial binary form from the CEU and records this data on magnetic tape in a high impact protective housing. The stored data comprises a continuous record of selected flight parameters acquired in the last 25 hours of system operation.

CR CAUTION: DURING GROUND TESTING OF THE DFDR, OR INPUT
CR PARAMETERS, LIMIT RECORDERS ON TIME TO THE MINIMUM
CR REQUIRED TO ACCOMPLISH TEST.

The DFDR system consists of:

DFDR installed in the aft electronic equipment area, zone 164

FLIGHT RCDR power control switchlight on the Flight Engineer/Second Officers (FE/SO) lower panel, zone 215

Underwater locating device (ULD) mounted vertically on the front panel of the DFDR.

2. Operation

Recording (Ref. Fig. 2) is basically accomplished in three sequential operations: erase, record, and reproduce. During erase, previously recorded data is completely removed before new data is recorded. New data to be recorded is received in serial binary-coded format from the central electronics unit (Ref. 31-32-00). The reproduce operation continuously monitors the recording process, producing a fault signal to the built-in-test-equipment (BITE), in the event a malfunction occurs. Electrical power is supplied to the DFDR as shown in Fig. 3.

3. Digital Flight Data Recorder (DFDR)

A. Description

The DFDR (Ref. Fig. 2) houses the equipment used for recording digital data on magnetic tape. The tape deck

assembly is enclosed in a steel-armor protective enclosure which has insulation on its inside surfaces. The DFDR electronics are on printed circuit boards. The boards, together with a modular power supply and tape drive motor, are mounted in a chassis attached to the enclosure. The DFDR is packaged in a 1/2-ATR-long frame and fitted into a dust cover. Electrical connectors at the rear of the DFDR provide electrical interface with the AIDS CEU , the FLIGHT RCDR power control switchlight (Ref. Fig. 1), and the primary ac and dc electrical system.

NOTE: During ground testing of the DFDR system components or signal input parameters, limit recorder power application to the minimum time required to complete the tests.

The DFDR incorporates 10 functional elements:

(1) Signal Conditioner and Record Amplifier

The signal conditioner and record amplifier accepts digital data from the CEU at a rate of 730 to 768 bits per second. The data format is a combination of information and clocking signal , so that it forms a single, continuous, self-clocking bit stream. The input waveform changes level at each clock-cycle time period. A waveform change at a half time period represents a binary one. No change in waveform over a full time period level represents a binary zero. The element conditions and amplifies the data signal to drive the record heads through a tape track selection switch. The conditioned data signal is also applied to the monitor drive capstan circuit.

(2) Motor Drive

The motor drive receives a conditioned input data signal from the signal conditioner and record amplifier. The motor drive extracts the clock data from the data input signal train and provides power to drive the capstan drive motor. The clock frequency synchronizes the capstan drive motor to the incoming data rate.

(3) Capstan Drive Motor

The motor is an incremental-type unit driven at a rate in synchronism with clock data extracted by the motor drive element from the input data stream. When the input data is continuous, the motor turns at a constant speed. The motor is coupled to and drives the tape deck capstan shaft by a single mylar belt. The capstan

shaft projects through the tape deck enclosure and in turn drives the bidirectional tape drive capstan.

(4) Recording Tape

Data is stored on magnetic recording tape. The 810 feet of endless loop tape is held on coaxial tape reels; that is, one reel is stacked on top of another. The top reel is the supply reel and the bottom reel as the takeup reel, regardless of the direction the tape is moving.

Four tape tracks are provided; tracks No. 1 and 3 are used during forward tape movement, and tracks No. 2 and 4 are used during reverse tape movement. During recording, one track at a time is recorded (old data is erased before new data is recorded). A small hole at each end of the tape allows the end of the tape (EOT) and the beginning of the tape (BOT) to be detected. When EOT/BOT is sensed, the capstan drive motor rotation is reversed, and the recording operation is switched to the next track. End-to-end recording time on each track is 6.25 hours; therefore, the recorder continuously retains the last 25 hours of selected flight data. The reels use springs to provide continuous tape takeup and hold-back tension; this results in the tape being driven under a constant tension.

(5) Erase/Record/Reproduce Heads

This element contains the magnetic heads which erase, record, and reproduce on the track chosen by a track selector switch. Six magnetic heads are used: two to erase, two to record, and two to reproduce.

(6) Erase Signal Generator

This element generates the ac signal used to drive the selected erase track.

(7) End-of-Tape/Beginning-of-Tape (EOT/BOT) and Track Switching Element

A solid state light emitting diode and photo sensitive pickup are utilized as tape EOT and BOT sensors. A minute window (hole) in the tape at each extreme end results in the photoelectric signal activating circuitry for reversing capstan motor drive direction and switching record heads to the next track in the recording sequence.

(8) Reproduce Amplifier

The amplifier reconstructs (reads) the data from the reproduce head after the data is recorded. The amplifier generates an output which is used for monitoring purposes.

(9) Built-in Test Equipment (BITE)

The DFDR contains a BITE function that monitors the presence of input data, the 5V dc regulated voltage in the DFDR, and the erase, record, and reproduce functions. A failure status in any of the above monitored circuits will be displayed by a lighted FDR lamp on the front panel of the AIDS CEU in the forward electronics service center (FESC), zone 112, and by the BITE indicator on the front panel of the DFDR. This indicator has a non-latching meter movement that changes the normal black color in the indicator viewing window to a day-glow yellow color, whenever a BITE sensed failure occurs.

(10) Power Supply

The power supply converts aircraft primary power to regulated and unregulated ±5V dc required to operate the DFDR electronics, track selection, and motor drive.

4. Underwater Locating Device (ULD)

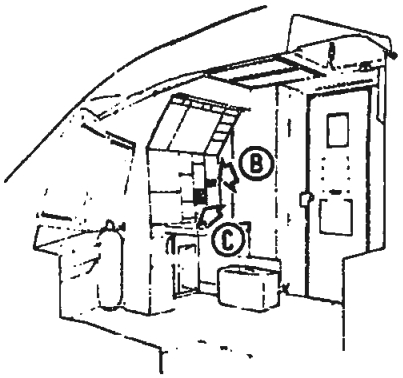
A. Description

The underwater locating device (ULD) is mounted vertically on the front panel of the DFDR.

The ULD is a self-contained, battery-powered unit enclosed in a high impact casing. When in operation, the device emits a continuous series of ultrasonic pulses providing underwater search teams with a sonar-type signal that indicates the location of a submerged DFDR.

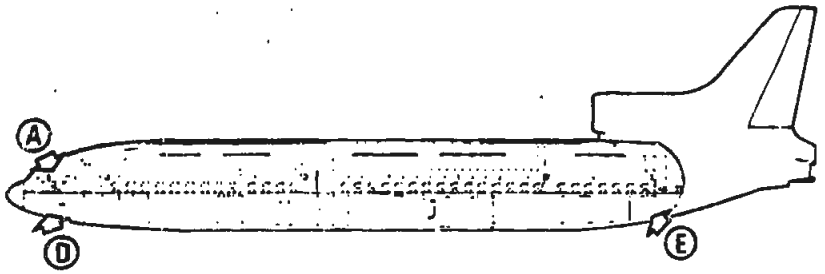
B. Operation

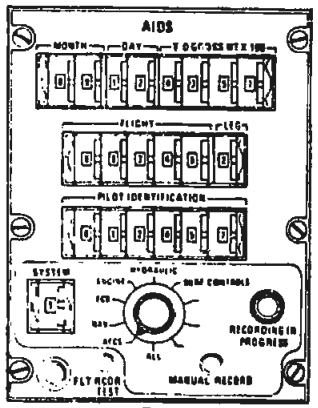
Operation of the device is automatically initiated when the device is submerged. The transmitted omnidirectional signal pulses are propagated through the water up to a distance of 1 mile.



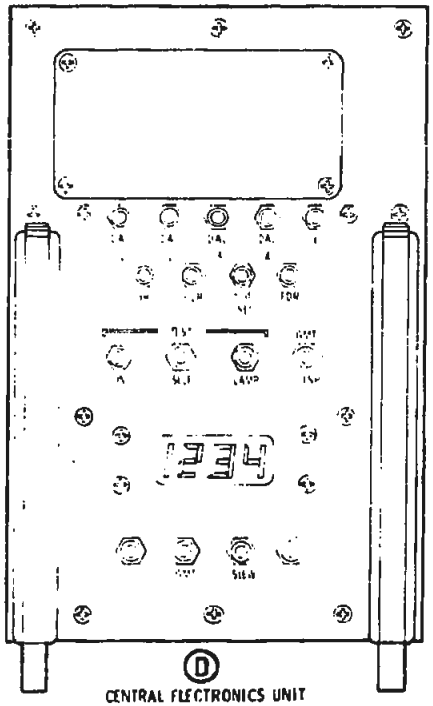
Ⓐ
FLIGHT ENGINEER SECOND OFFICERS STATION

Ⓑ
FLT RCDR PWR SW
(WASTE WATER PANEL)

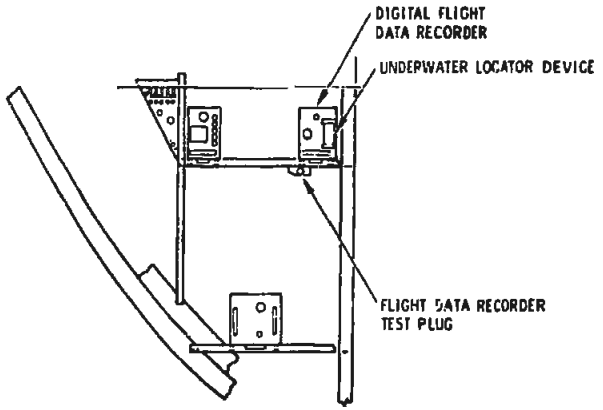




Ⓒ
AIDS CONTROL UNIT
⚠



Ⓓ
CENTRAL ELECTRONICS UNIT
(FSC - LEFT SIDE)
⚠



Ⓔ
AFT ELECTRONICS EQUIPMENT AREA
(VIEW LOOKING AFT)

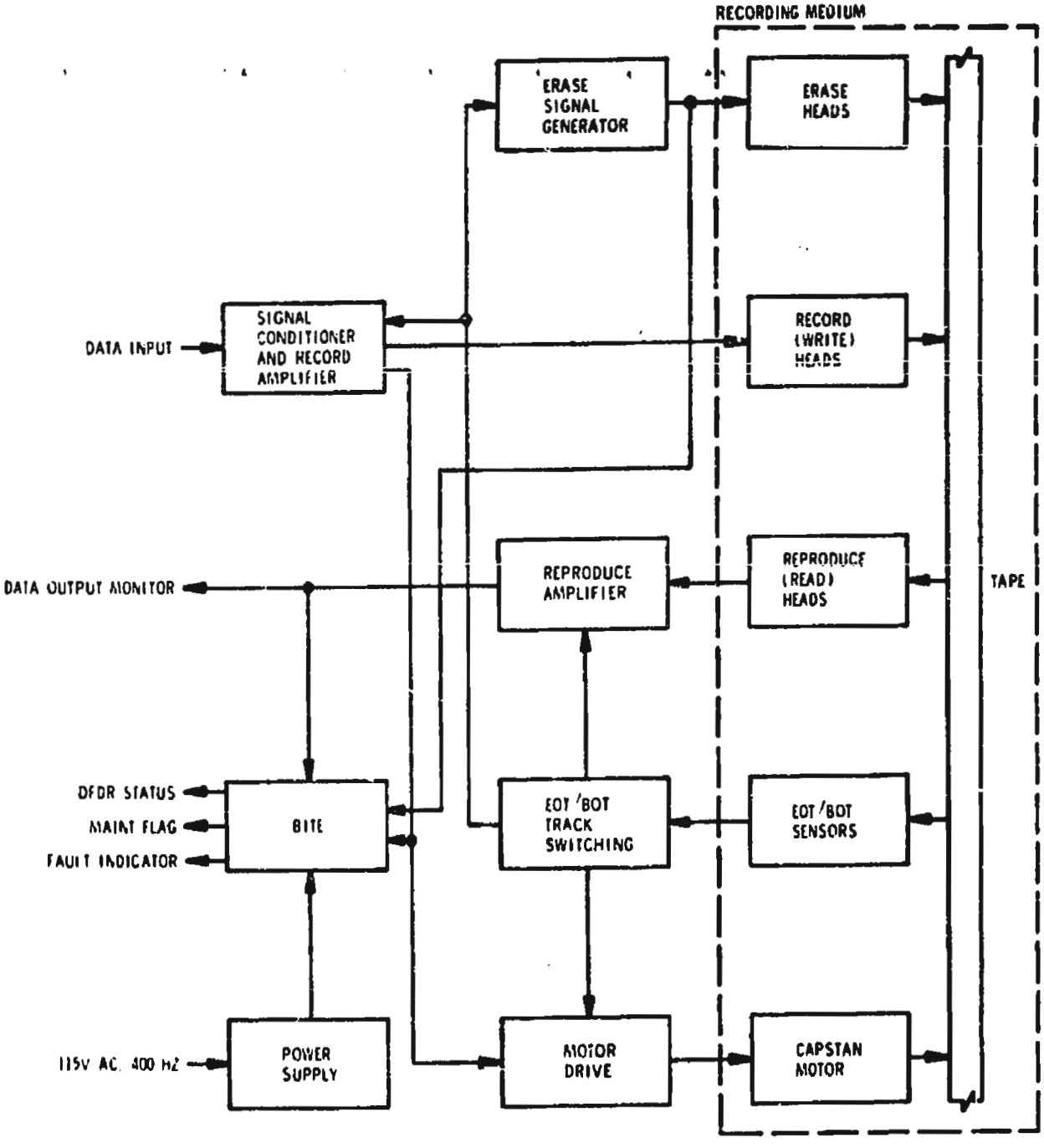
NOTE

⚠ AIRCRAFT INTEGRATED DATA SYSTEM (AIDS) COMPONENT. REFER TO SECTION 31-32-00 FOR ADDITIONAL INFORMATION

M1-5004-31-109

R DFDR System Component Locations
R Figure 1

R EFFECTIVITY: ALL
R
001B



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R DFDR Simplified Block Diagram
R Figure 2

EFFECTIVITY: ALL

0018

R DIGITAL FLIGHT DATA RECORDER SYSTEM (DFDR) - FAULT ISOLATION

1. General

Reference data and fault isolation procedures for troubleshooting DFDR system faults are included in this section of the manual. A DFDR system malfunction detected by the flight crew is normally entered in the aircraft flight log book and reported to maintenance personnel by a FIRM fault code number. This number and the flight log book write-up can be found in the Chapter 31 Fault Code Index. The index specifies the maintenance manual section, fault isolation diagram figure number and, where appropriate, a block number indicating the diagram entry point containing the fault isolation procedure. When no block number is specified, the diagram entry point is block 1.

Prerequisites listed at the top of each diagram identify mandatory preliminary steps and circuit breakers that must be closed before initiating any fault isolation step.

Schematic Diagrams, identified by a SCHEM number, supplement fault isolation procedures as maintenance aids. The schematics show the basic system circuitry necessary for troubleshooting and include cross-reference indexes to the wiring diagram manual pages required for checking component interconnect wiring.

2. Supplemental Data

A. Equipment and Materials

Model 563 AIDS/DFDR Tester

B. Referenced Procedures

24-00-00 Electrical Power - Maintenance Practices

C. The DFDR is included in the Aircraft Integrated Data System (AIDS) programmed automatic and manual self-test routines (Ref. 31-32-00).

A switchlight installed just to the upper right from the AIDS control panel functions as a DFDR power ON-OFF switch. The light goes out when depressed, indicating the DFDR
R system is powered. A BITE indicator on front of DFDR will latch to failed condition (yellow) if failure is within the DFDR unit and not a power interruption.

NOTE: During ground testing of the DFDR system components or signal input parameters, limit recorder power application to the minimum time required to complete the tests.

Operational status of the DFDR may also be confirmed by depressing the FLT RCDR TEST pushbutton installed at the FE/SO position on the AIDS Control Unit panel. An operational system will result in a blue light adjacent to the pushbutton coming on and remaining on until the pushbutton is released. The blue light indicates that the status flag circuit within the DFDR is open and also that -15V dc is available to the DFDR, and that the Erase, Record and Reproduce functions are operational. A blue light also indicates that DAU No.1 is operational, and the CEU is operational.

R CAUTION: DO NOT EXCHANGE FLIGHT DATA RECORDERS BETWEEN AIRCRAFT.

A malfunctioning DFDR will result in the normally black maintenance flag on the DFDR changing to yellow, the FDR light on the AIDS Central Electronics Unit (Ref. 31-32-00)
R coming on, and the blue light on the AIDS Control Unit panel remaining off when the FLT RCDR TEST pushbutton is pressed, except when power to DFDR is interrupted.

Table 101, a tabulation of DFDR system signal codes in numerical order, is included for fault isolating a specific DFDR signal or series of signals. Each signal listed is routed from the central electronics unit (CEU), a component of the AIDS system (Ref. 31-32-00), and is identical to the corresponding signal code recorded by the AIDS continuous loop recorder (CLR). Table 102 is a tabulation of documentary data signals and addresses for checking flight data entry panel control logic and central electronics unit signal scaling, formatting, and output.

The Model 563 AIDS/DFDR Portable Tester interface with the DFDR and operating instructions are included in Section 31-32-00, Aircraft Integrated Data System - Fault Isolation. Differences in AIDS and DFDR test setups consist of positioning the MODE SELECT rotary switch to L-1011 DFDR and selecting the proper thumbwheel address from Table 101 for the desired parameter readout. Note that identical DFDR and
R AIDS signals are assigned different thumbwheel addresses.

AIDS fault isolation section also includes tables for locating the appropriate signal schematic for intepretation of the 563 Tester digital readout of the selected parameter. This information is included on each AIDS schematic in table

form entitled Signal Characteristics (AIDS). Supplemental data in this section is listed in Table 101.

Supplemental Data
Table 101

TABLE NO.	TITLE
Table 102	DFDR System Signal Parameters
Table 103	Documentary Data Signals and Address

DFDR System Signal Parameters
Table 102

SIGNAL CODE	TITLE	SIGNAL SENSOR/ TYPE	563 TESTER THUMBWHEEL ADDRESS	
			LOOP	DFDR
1-1	ADC-1 Coarse Pressure Altitude (34-14-00)	Synchro	164	049
1-2	ADC-1 Fine Pressure Altitude (34-14-00)	Synchro	168	050
3-1	ADC-1 Computed Airspeed (34-14-00)	Synchro	051	037
13-1	Vertical Acceleration-CG (1st Sample) (31-32-00)	Low Level DC	094	015
13-1	Vertical Acceleration-CG (2nd Sample) (31-32-00)	Low Level DC		031
13-1	Vertical Acceleration-CG (3rd Sample) (31-32-00)	Low Level DC		047
15-1	Lateral Acceleration-CG (1st Sample) (31-32-00)	Low Level DC	097	016
15-1	Lateral Acceleration-CG (2nd Sample) (31-32-00)	Low Level DC		032
15-1	Lateral Acceleration-CG (3rd Sample) (31-32-00)	Low Level DC		048
36	Thrust Reverser In-Transit	Series Discrete (3)	309	055

DFDR System Signal Parameters (Cont)
Table 102

SIGNAL CODE	TITLE	SIGNAL SENSOR/ TYPE	563 TESTER THUMBWHEEL ADDRESS	
			LOOP	DFDR
-1	Engine No. 1		309-9	055-9
-2	Engine No. 2		309-8	055-8
-3	Engine No. 3 (33-18-00)		309-7	055-7
39-1	VG-1 Pitch Attitude (34-21-00)	Synchro	082	022
40-1	VG-1 Roll Attitude (34-21-00)	Synchro	084	029
41-1	Compass Coupler-1 Directional Heading (34-22-00)	Synchro	174	030
42-1	Local Air Flow, Left Pitch Axis (22-31-00)	Synchro	114	011
42-2	Local Air Flow, Right Pitch Axis (22-31-00)	Synchro	117	042
47-1	RH Outboard TE Flap Position (27-52-00)	Synchro	282	059
47-2	LH Outboard TE Flap Position (27-52-00)	Synchro	284	064
001-031 WITHOUT SB27-179 51-1	Control Column Position - Roll (Capt)(27-11-00)	Potentiometer	100	027
001-031 WITH SB27-179 AND 032-999 51-3	Control Column Position - Roll (Capt) (27-11-00)	Potentiometer	100	027

DFDR System Signal Parameters (Cont)
Table 102

SIGNAL CODE	TITLE	SIGNAL SENSOR/ TYPE	563 TESTER THUMBWHEEL ADDRESS	
			LOOP	DFDR
001-031 WITHOUT SB27-179 51-2	Control Column Position - Roll (F/O)(27-11-00)	Potentiometer	103	028
001-031 WITH SB27-179 AND 032-999 51-4	Control Column Position - Roll (F/O) (27-11-00)	Potentiometer	103	028
52-1	Rudder Position (1st Sample)	Potentiometer	260	014
52-1	Rudder Position (2nd Sample)	Potentiometer	260	046
96-15	Right Wing Slat Position-All (27-82-00)	Synchro	286	061
110-2	LH Pitch Trim Position-Electrical (27-41-00)	Potentiometer	088	020
001-031 WITHOUT SB27-173 111-1	Control Column Position-Pitch (Capt)(27-41-00)	Potentiometer	090	018
001-031 WITH SB27-173 AND 032-999 111-5	Control Column Position - Pitch (Capt) (27-41-00)	Potentiometer	090	018
001-031 WITHOUT SB27-173 111-2	Control Column Position-Pitch (F/O)(27-41-00)	Potentiometer	092	019

DFDR System Signal Parameters (Cont)
Table 102

SIGNAL CODE	TITLE	SIGNAL SENSOR/ TYPE	563 TESTER THUMBWHEEL ADDRESS	
			LOOP	DFDR
001-031 WITH SB27-173 AND 032-999 111-6	Control Column Position - Pitch (F/O) (27-41-00)	Potentiometer	092	019
001-031 WITHOUT SB27-185 112-1	Rudder Pedal Position (27-21-00)	Potentiometer	106	013
001-031 WITH SB27-185 AND 032-999 112-2	Rudder Pedal Position (27-21-00)	Potentiometer	106	013
122	Thrust Reverser Deployed	Series Discrete (3)	148	056
-1	Engine No. 1		148-4	056-4
-2	Engine No. 2		148-5	056-5
-3	Engine No. 3 (33-18-00)		148-6	056-6
160	VHF & HF Microphone-	Shunt Discrete (5)	304	057
-1	VHF No. 1		304-1	057-1
-2	VHF No. 2		304-2	057-2
-3	VHF No. 3		304-3	057-3
-4	HF No. 1		304-4	057-4
-5	HF No. 2 (23-51-00)		304-5	057-5

R DFDR System Signal Parameters (Cont)
R Table 102

SIGNAL CODE	TITLE	SIGNAL SENSOR/ TYPE	563 TESTER THUMBWHEEL ADDRESS	
			LOOP	DFDR
162-2, -3	2nd Significant Digit		028	007
162-4, -5, 6	Least Significant Digit		029	007
164	Integrated Engine Pressure Ratio	Low Level DC (3)		
-1	Engine No. 1		054	033
-2	Engine No. 2		120	034
-3	Engine No. 3 (77-11-00)		191	035

Documentary Data Signals and Address
Table 103

TITLE	563 TESTER THUMBWHEEL ADDRESS	
	LOOP	DFDR
Flight No. - Most Significant Digit	005	002
Flight No. - 4th Digit	006	002
Flight No. - 3rd Digit	007	002
Flight No. - 2nd Digit	008	003
Flight No. - 1st Digit	009	003
Flight No. - Leg Digit	010	003
Month - Most Significant Digit	011	004
Month - Least Significant Digit	012	004
Day of Month - Most Significant Digit	013	004
Day of Month - Least Significant Digit	014	005
GMT Hours - Most Significant Digit	015	005
GMT Hours - Least Significant Digit	016	005
GMT Minutes - Most Significant Digit	017	006
GMT Minutes - Least Significant Digit	018	006
GMT Seconds - Most Significant Digit	019	006
GMT Seconds - Least Significant Digit	020	007

3. Fault Isolation/Identification

Table 104 Lists the fault isolation diagrams and schematics in this section.

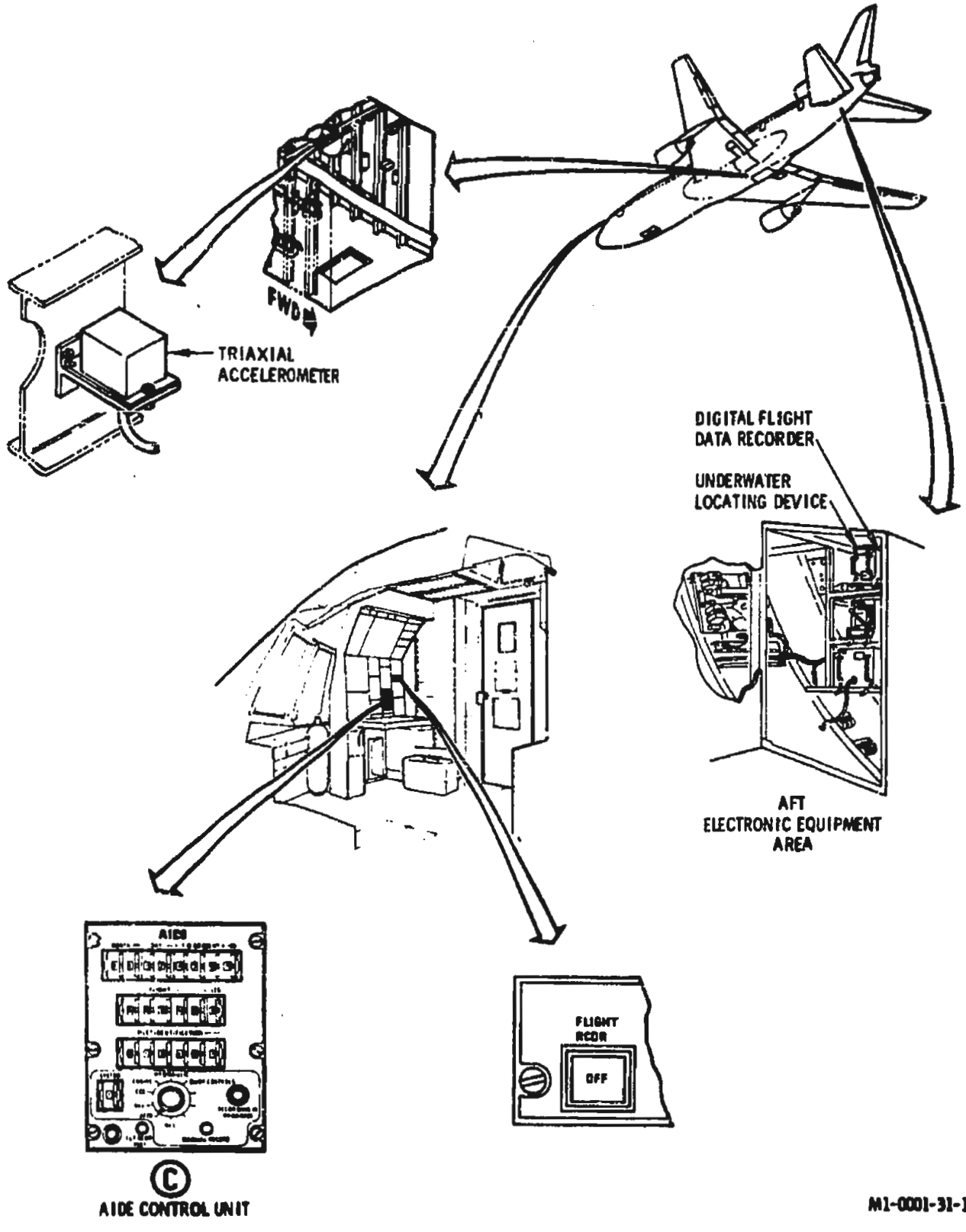
TABLE 104

FIGURE	TITLE
101	Component Location Index
102	Component Locator Diagram
103	Flight Recorder Test Light - Fault Isolation Diagram
SCHEM 1	DFDR Power Control and Interface Schematic

COMPONENT	QTY	AREA/ACCESS	REFERENCE
ACCELEROMETER – TRIAXIAL	1	HSC/147AB	31-31-04
DEVICE – UNDERWATER LOCATING	1	AEEA DN DFDR/162GR	31-31-07
PANEL – FLIGHT DATA ENTRY	1	FE/SD INSTR PANEL/P-12	31-31-08
RECORDER – DIGITAL FLIGHT DATA	1	AEEA/162GR	31-31-01

M1-0000-31-129

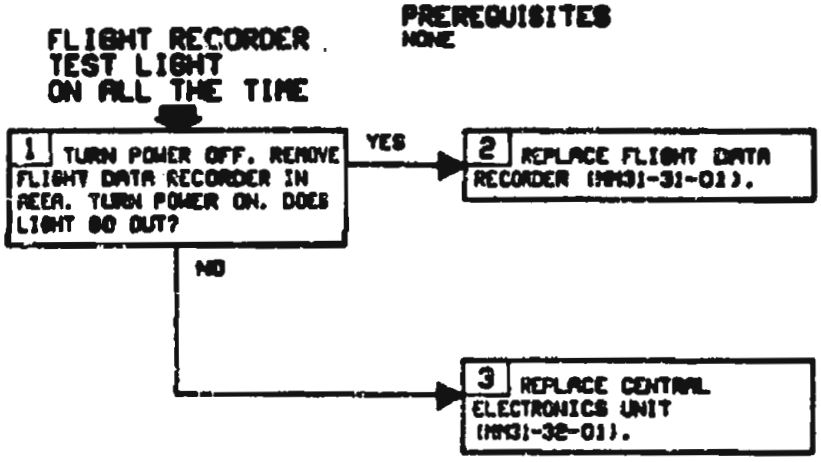
Component Location Index
Figure 101



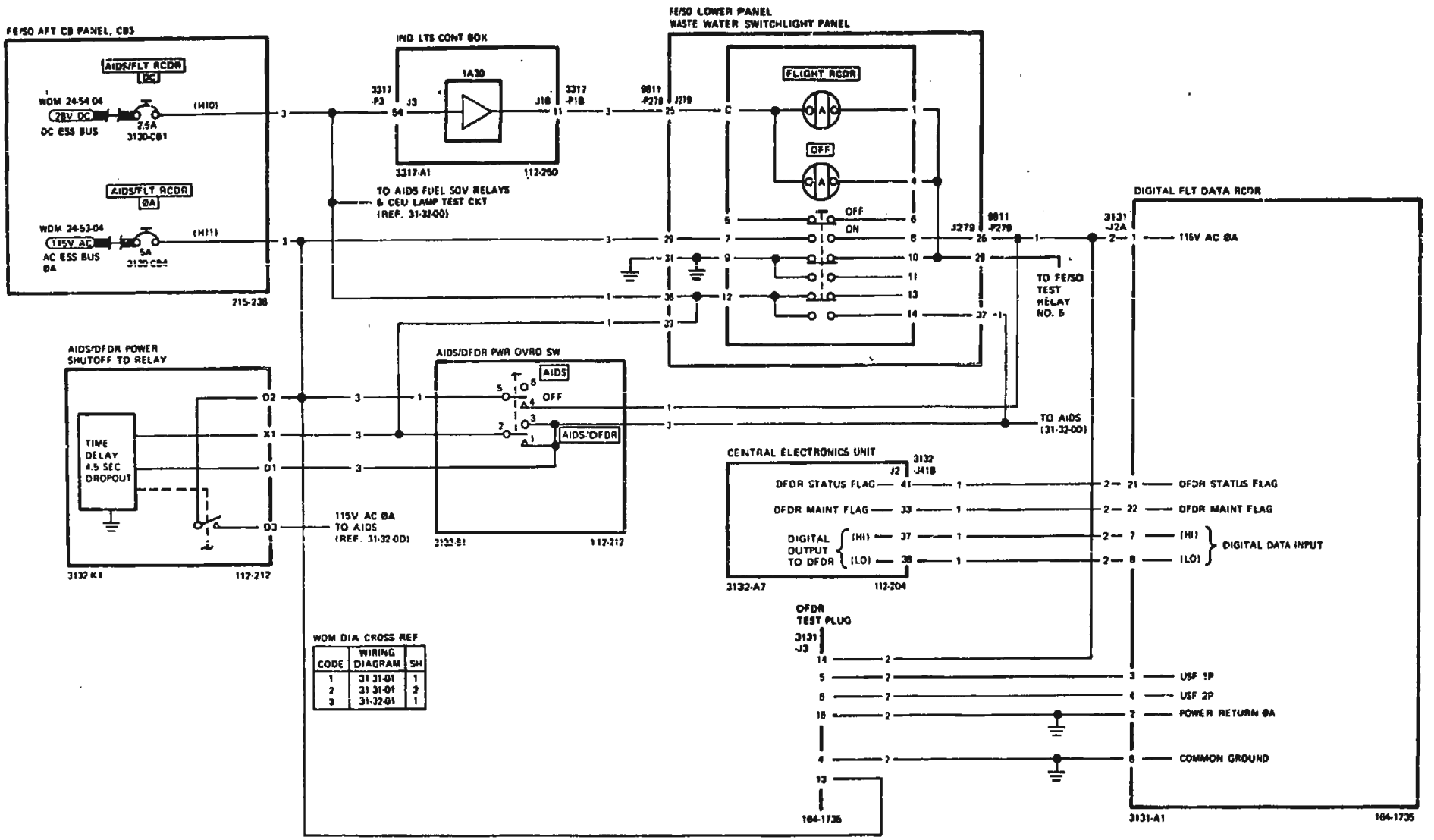
M1-0001-31-139

R
R

Component Locator Diagram
Figure 102


PREREQUISITES
NONE
FLIGHT RECORDER TEST LIGHT ON ALL THE TIME
1 TURN POWER OFF. REMOVE FLIGHT DATA RECORDER IN REEA. TURN POWER ON. DOES LIGHT GO OUT?
YES
2 REPLACE FLIGHT DATA RECORDER (MM31-31-01).
NO
3 REPLACE CENTRAL ELECTRONICS UNIT (MM31-32-01).

Flight Recorder Test Light
Fault Isolation Diagram
Figure 103



R DFDR Power Control and Interface Schematic
R SCHEM 1

R EFFECTIVITY: ALL
R
0038

DIGITAL FLIGHT DATA RECORDER (DFDR) - REMOVAL AND INSTALLATION

1. Equipment and Materials

Protective Caps

2. Referenced Procedure

20-23-01 Electronic Equipment Rack Front Holddown Extractor Maintenance Practices

31-31-01 Flight Data Recorder - Adjustment and Test

3. Removal/Installation

CAUTION: DO NOT EXCHANGE FLIGHT DATA RECORDERS BETWEEN AIRCRAFT.

A. Removal

(1) On Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215, open and tag circuit breakers AIDS/FLT RCDR DC (H10), AØ (H11), BØ (H12), and CØ (H13).

(2) Gain access to aft electronics equipment area (AEEA), through aft cargo compartment door, 162 DR. Locate DFDR installed on AEEA rack, zone 164 (Ref. Fig. 401).

(3) Loosen recorder holddown knobs and remove digital flight data recorder from mounting tray (Ref. 20-23-01).

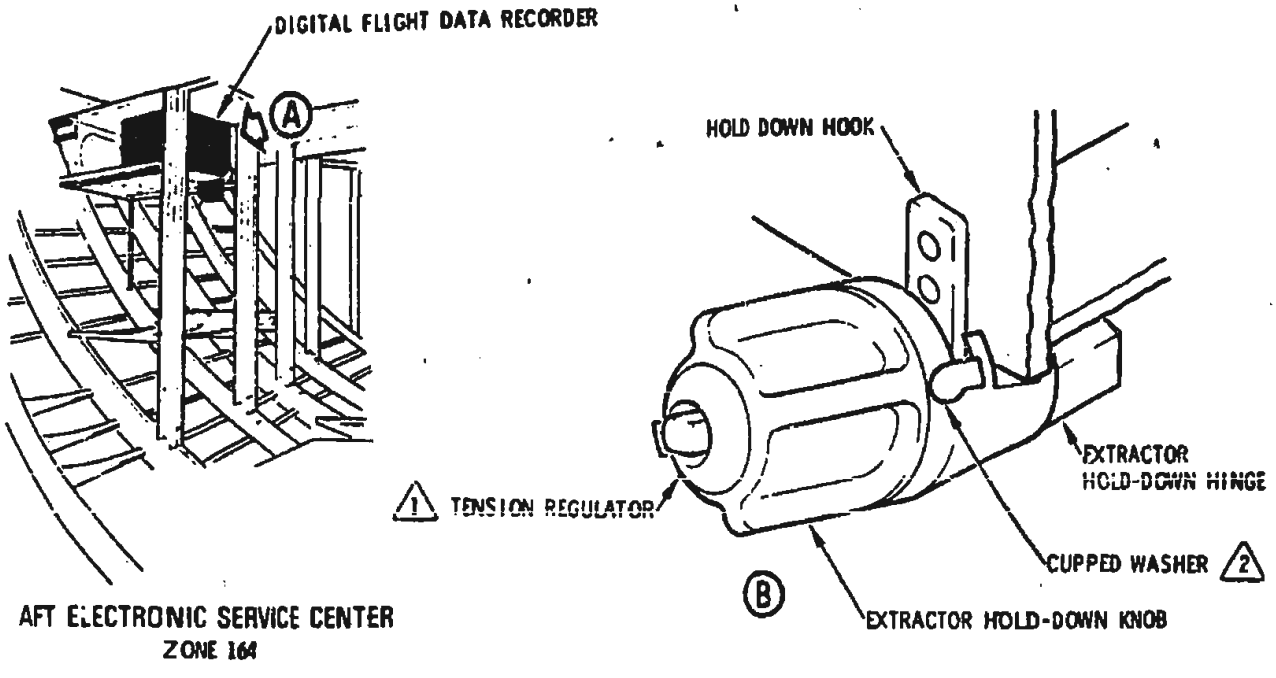
CAUTION: ONLY QUALIFIED ELECTRONIC MAINTENANCE SHOP PERSONNEL MAY BE AUTHORIZED TO OPEN OR DISASSEMBLE THE DFDR. IMPROPER MAINTENANCE TECHNIQUES CAN RESULT IN LOSS OF RECORDED DATA.

B. Installation

NOTE: It will be necessary to transfer the ULD from old DFDR to new. Reference 31-31-07.

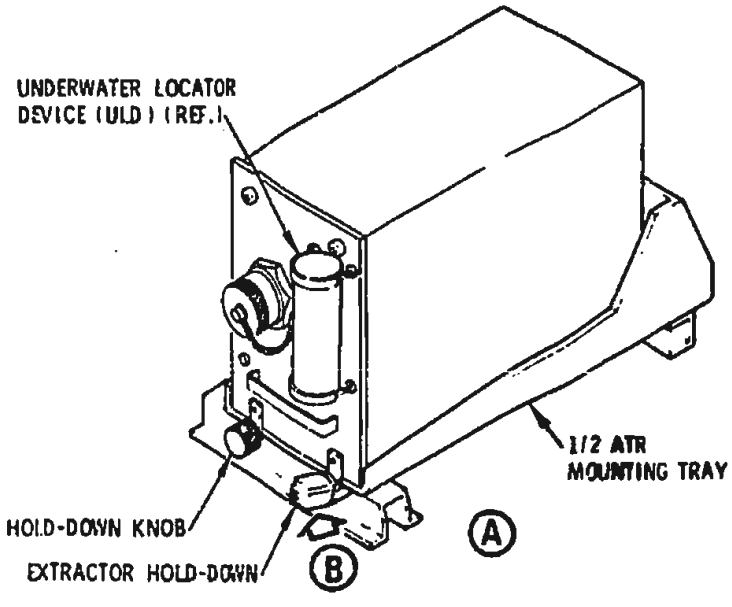
(1) Verify that circuit breakers opened in Step 3A(1) are open and tagged.

(2) Mount DFDR on rack and slide aft until electrical plug engages receptacle. Tighten recorder holddown knobs.



NOTE

1. RED BAND ON TENSION INDICATOR IS HIDDEN FROM VIEW WHEN EXTRACTOR HOLD-DOWN KNOB IS TIGHTENED AND HOLDING DFDR IN PLACE
2. TANG ON CUPPED WASHER IS ROTATED CLOCKWISE TO ENGAGE HOOK ATTACHED TO DFDR CASE



M1-5002-31-112

CR Digital Flight Data Recorder - Removal and Installation
CR Figure 401

EFFECTIVITY: ALL

001B

(3) Close and secure access door.

(4) Remove tags and close circuit breakers opened in Step 3A(1).

R CAUTION: DO NOT OPERATE DFDR LONGER THAN NECESSARY TO CONFIRM NORMAL OPERATION.

(5) Perform DFDR Bite Test. Reference 31-31-01.

C DIGITAL FLIGHT DATA RECORDER (DFDR) - ADJUSTMENT AND TEST

CR 1. Flight Data Recorder BITE Test (aircraft without ACARS
CR installed)

C A. Turn on electrical power (Ref. 24-00-00).

C B. On Flight Engineer/Second Officers aft circuit breaker panel
C CB3, zone 215, verify that the following circuit breakers
C are closed:

C AIDS/FLT RCDR DC (H10)

C AIDS/FLT RCDR Aϕ (H11)

C AIDS/FLT RDCR Bϕ (H12)

C AIDS/FLT RCDR Cϕ (H13)

CR C. At the F/E station WASTE WATER panel, depress (latch in) the
CR FLIGHT RECORDER switchlight and verify the OFF light
CR extinguishes.

CR D. Wait 20 seconds, then on the AIDS DATA ENTRY panel press and
CR hold the FLIGHT RECORDER TEST switch for 5 seconds. The
CR adjacent blue test light should illuminate.

CR NOTE: Failure of the blue light to come on, blinking during
CR test, or failure of the blue light to go out when the
CR test switch is released indicates a malfunction.
CR Check that the light cap is not in full "dim", or the
CR blue light may not appear to be illuminated.

CR E. Place the FLIGHT RECORDER switchlight to the OFF (out)
C position.

C F. Turn off electrical power (Ref. 24-00-00).

CR 1. Flight Data Recorder BITE Test (aircraft with ACARS installed)

CR A. Turn on electrical power (Ref. 24-00-00).

CR B. On Flight Engineer/Second Officers aft circuit breaker panel
CR CB3, zone 215, verify that the following circuit breakers
CR are closed:

CR AIDS/FLT RCDR DC (H10)

CR AIDS/FLT RCDR Aϕ (H11)

CR AIDS/FLT RCDR Bϕ (H12)

CR AIDS/FLT RCDR Cϕ (H13)

CR C. On WASTE WATER panel, zone 215, depress (latch in) DFDR
CR switchlight and verify that OFF light in switchlight goes
CR off within 15 seconds.

CR D. Place FLT RCDR switchlight in off (out) position.

CR E. Turn off electrical power (Ref. 24-00-00).

C 2. DFDR - Functional Test

C NOTE: See page 504 for Parameter Index.

C A. Parameter Calibration Check

C (1) The following procedures provide the information
C necessary to check the calibration of all input
C parameters of the DFDR.

C (2) DFDR input parameter calibration is required only as
C called out by MCI engineering, and is not required
C after a DFDR replacement.

C (3) As the FAA requires a minimum of 24 flight hours to be
C available on each aircraft, and the maximum recording
C time of the DFDR is only slightly greater than 25
C hours, the ground testing time of the DFDR is limited
C to one hour.

C B. Equipment and Materials

C (1) ARINC 563 portable tester R&R 90201

C (2) Adapter Harness EQ 1236

C (3) MB-1 Pitot/Static tester R&R 90071 or equivalent

C (4) Radio Altimeter tester R&R 90202

C (5) ILS tester TIC-30 or CRM 555

C (6) Proximity Switch Targets and shades.

C (7) Gimbal slew connector assembly. Delco P/N 788466

C C. Prepare for Test

C (1) Assure the following circuit breakers are deenergized
C (open).

C (a) CB3

C 1) AIDS/FLT RCDR DC H10

C 2) AIDS/FLT RCDR Aϕ H11

C 3) AIDS/FLT RCDR Bϕ H12

C 4) AIDS/FLT RCDR Cϕ H13

C (2) Remove Loop Recorder from its tray in Forward
C Electronic Service Center (FESC).

C (3) Connect 563 tester cable to Loop Recorder tray
C connector in the airplane rack (FESC). Set MODE SELECT
C switch on LOOP IN position. Set PARAMETER SELECT
C switches as required for parameter under test.

C (4) Power all AC and DC Buses.

C (5) Energize (close) circuit breakers open in Step 2C(1).

C (6) At Waste Water Control Panel (Lower F/E Panel) turn
C DFDR on. Check that switch light goes off.

C (7) At AIDS Data Entry Panel press FLT RECD TEST switch.
C Check that adjacent blue lamp illuminates when test
C switch is depressed and goes out when switch is
CR released. NOTE: This step required only on aircraft
CR without ACARS.

C (8) At Waste Water control panel turn DFDR off, and
C position AIDS TEST switch in FESC to AIDS ONLY
C position.

C NOTE: Calibration and Adjustment and Test procedures
C are performed using AIDS system without DFDR
C operating to limit ground operating time on the
C DFDR. A final check must be performed with the

563 tester connected to the ATE connector on the front panel of DFDR in the Aft Electronic Equipment AREA (AEEA). Set MODE SELECT switch on 563 Tester to L1011 DFDR position and parameter select switches as called out for the input parameter under test.

D. Discrete Word Decoding

(1) Several DFDR parameters are discrete (on/off) inputs. Nine separate inputs are combined to make up a discrete word. Each discrete word consists of three binary numbers. The 563 tester converts these three binary numbers to a three digit decimal number. Use the following information to decode the 563 decimal number to a specific discrete input.

(a) Each discrete word is made up of 9 discrete (ON/OFF) inputs which are called bits. The bit position determines its value when decoded to decimal form. The binary number to decimal conversion is:

000 = 0	100 = 4
001 = 1	101 = 5
010 = 2	110 = 6
011 = 3	111 = 7

(b) Thus as the discrete word in binary format varies from 000-000-000 to 111-111-111, the decimal equivalent varies from 000 to 777. If the binary number were 101-010-111, the decimal number would be 527. If the decimal number were 436, the binary number would be 100-011-110.

(c) As an example discrete word 57 (563 parameter select position 057) consists of the following inputs:

1.	No 1	VHF	Mike	Not Keyed 1
2.	No 2	VHF	Mike	Not Keyed 1
3.	No 3	VHF	Mike	Not Keyed 1
4.	No 1	HF	Mike	Not Keyed 1

C	5.	No 2 HF Mike	Not Keyed 1
C	6.	Capts A/P Mode Ann Align	Not Captured 1
C	7.	Auto Thrust Engaged	Engaged 1
C	8.	Hyd. system B low press.	Not low 1
C	9.	Hyd. system C low press.	Not low 1

C (d) A 563 tester reading of 770 would indicate no mikes keyed, Capts A/P Align Mode Ann not captured, Auto Thrust not engaged, and low press. on B and C hyd. systems.

C E. Parameter - Adjustment/Test

C NOTE: These procedures are written to permit the testing of any individual parameter separate, but Paragraph 2. C (Prepare to Test) should be performed prior to testing any parameter.

C (1) The various parameter test procedures are located in this FUNCTIONAL TEST procedure as follows:

	LACC SIGNAL CODE	PARAMETER	PARAGRAPH	PAGE
C	13-1	Vertical Acceleration	3	507
C	15-1	Lateral Acceleration	4	508
C	1-1, 1-2	Altitude	5	509
C	3-1, 3-2	Airspeed	6	511
C	42-1, 42-2	Angle of Attack, LH & RH	7	513
C	39-1	Pitch Attitude	8	515
C	40-1	Roll Attitude	9	517
C	41-1	Magnetic Heading	10	519
C	167-1	Total Air Temperature	11	521
C	187-1, 187-2	Altitude Fine Synchro, Capt's & F/O's	12	523

LACC SIGNAL CODE	PARAMETER	PARAGRAPH	PAGE
4-1	Mach Number	13	525
117-1	Radio Altitude	14	527
186-1, 186-2	Selected Course	15	528
20-1, 20-2, 20-3	Engine Thrust (EPR's)	16	530
112-1	Rudder Pedal Position	17	532
52-1	Rudder Position	18	534
111-1, 111-2	Control Column Position	19	536
110-2	Pitch Trim Position	20	539
46-1	Stabilizer Position	21	541
51-1, 51-2	Control Wheel Position	22	543
11-2, 11-3	Aileron Position	23	545
11-5, 11-6, 11-7, 11-8	Spoiler Position	24	548
47-1, 47-2	Trailing Edge Flaps	25	550
96-15	Leading Edge Flaps	26	552
115-1	Glide Slope Deviation	27	554
114-1	Localizer Deviation	28	556
160-1, 160-2, 160-3, 160-4, 160-5	Microphone Operation	29	558
36-1, 36-2, 36-3, 122-1, 122-2, 122-3	Thrust Reverser Inputs	30	561
Q6-1, Q6-2	Landing Gear Down & Locked & Air/Gnd	31	564
68-1, 68-2, 68-3	Landing Gear In Transit	32	566

LACC SIGNAL CODE	PARAMETER	PARAGRAPH	PAGE
Q4, 179-11, 176-1, 176-2, 176-3, 176-4, 177-4, 183-1	Autopilot/Flight Director Inputs	33	568
179-1, 179-2, 179-3, 179-4, 179-5, 179-6, 179-7, 179-8, 179-9, 75-1	AFCS Mode Selections	34	571
--	Time	35	574
--	AIDS Data Entry Panel Information	36	575

C 3. Vertical Acceleration (See 31-32-10 Schem 16)

C A. Assure the following circuit breakers are closed (energized).

C CB3

C AIDS/FLT RCDR DC H10

C AIDS/FLT RCDR Aφ H11

C AIDS/FLT RCDR Bφ H12

C AIDS/FLT RCDR Cφ H13

C B. Set parameter select switches as follows:

C (1) Loop position 094

C (2) DFDR position 015

C C. Check that parameter display reads 466 ± 21.

C D. Remove accelerometer from its mount - lay unit on its side.

C NOTE: Accelerometer is mounted overhead in hydraulic service center, Zone 147, Sta 1243, BL 0. M/M 31-31-04.

C E. Check that parameter display reads 360 ± 21.

C F. Rotate accelerometer 90° so that it is inverted from its installed position.

C G. Check that parameter display reads 258 ± 21.

C H. Reinstall accelerometer.

C I. Open (deenergize) AIDS Circuit Breaker closed in Step 3A.

C J. Remove 563 tester from Loop Recorded located in FESC and install 563 tester at DFDR ATE connector located in AEEA. Position mode select switch to L1011 DFDR and position parameter select switches as required.

C K. Close (energize) AIDS Circuit Breaker opened in Step 3I.

C L. Check that parameter display reads 466 ± 21.

C M. Turn DFDR off, open AIDS Circuit Breakers closed in Step 3K and remove 563 tester.

C 4. Lateral Acceleration (See 31-32-10 Schem 16)

C A. Assure the following circuit breakers are closed:

	CB3
AIDS/FLT RCDR DC	H 10
AIDS/FLT RCDR Aϕ	H 11
AIDS/FLT RCDR Bϕ	H 12
AIDS/FLT RCDR Cϕ	H 13

C B. Set the parameter select switches as follows:

C (1) Loop position 097

C (2) DFDR position 016

C C. Check that parameter display reads 520 ± 24.

C D. Remove accelerometer from its mount and lay unit on its right side facing forward as removed from the mount.

C NOTE: Accelerometer is mounted overhead in hydraulic service center zone 147, Sta 1243, BL 0. Ref M/M 31-31-04.

C E. Check that parameter display reads 040 ± 24.

C F. Lay unit on its left side facing forward as removed from the mount.

C G. Check that parameter display reads (999 +0 -23).

C H. Reinstall accelerometer.

C I. Open (deenergize) AIDS Circuit Breakers closed in Step 4A.

C J. Remove 563 tester from Loop Recorder located in FESC and install 563 tester at DFDR ATE connector located in AEEA. Position mode select switch to L1011 DFDR and position parameter select switches as outlined in Step B.

C K. Close (energize) AIDS Circuit Breakers opened in Step 4I.

C L. Check that parameter display reads 520 ± 24.

C M. Turn DFDR off, open AIDS Circuit Breakers closed in Step 4K and remove tester.

C 5. Altitude (See 31-32-10 Schem 23)

C A. Assure the following circuit breakers are closed:

CB3		CB1	
AIDS/FLT RCDR DC	H 10	INSTR CMPRN MON PWR	D8
AIDS/FLT RCDR Aϕ	H 11	INSTR CMPRN MON	D26
AIDS/FLT RCDR Bϕ	H 12	CAPTS INSTR	E1
AIDS/FLT RCDR Cϕ	H 13	F/O INSTR	E2
		VERT SP IND	E4
		VERT SP IND	E21
		IAS/MACH	F1
		ALTM	F4
		IAS/MACH	F19
		ALTM	F22
		AIR DATA CMPTR	G8
		AIR DATA CMPTR	G27

C B. Set the parameter select switches as follows:

C (1) Loop position Coarse 164 Fine 168

C (2) DFDR position Coarse 049 Fine 050

C C. In the Forward Electronic Service Center (FESC), perform one of the following test:

C (1) If Central Air Data Computer (CADC), is installed in No. 1 position depress and hold self test switch on front of unit.

C (2) After the Captain's altimeter stabilizes at 45,000 feet and the flag retracts (approximately 2 minutes), check that the parameter display readings are as follows:

C (a) Coarse altitude 333 ± 2 counts

C (b) Fine altitude 999 ± 25 counts

C (3) Release self test switch.

C D. If Digital Air Data Computer (DADC), is installed in No. 1 C position initiate slew test (Ref. MM34-14-00).

C (1) After the Captain's altimeter stabilizes at 9600 feet C and after slew test is initiated (approximately 30 C seconds), depress and hold self test switch on front of C unit.

C (2) This will hold altimeter reading at 9600 feet, check C that the parameter display readings are as follows:

C (a) Coarse altitude 71 ± 2 counts

C (b) Fine altitude 920 ± 25 counts

C (3) Release self test switch.

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO C AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED) C WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C D. Perform check at DFDR in AEEA if first check was at LOOP C RECORDER in FESC.

C 6. Airspeed (See 31-32-10 Schem 25)

C A. Assure the following circuit breakers are closed:

CB2		CB1	
AIDS/FLT RCDR DC	H 10	INSTR CMPRN MON PWR	D8
AIDS/FLT RCDR Aφ	H 11	INSTR CMPRN MON	D26
AIDS/FLT RCDR Bφ	H 12	CAPTS INSTR	E1
AIDS/FLT RCDR Cφ	H 13	F/O INSTR	E2
		VERT SP IND	E4
		VERT SP IND	E21
		IAS/MACH	F1
		ALTM	F4
		IAS/MACH	F19
		ALTM	F22
		AIR DATA CMPTR	G8
		AIR DATA CMPTR	G27

C B. Set the parameter select switches as follows:

C (1) Loop position Capts 188 F/O 186

C (2) DFDR position Capts 37 F/O 60

C C. In the FESC, perform one of the following test on both units C installed in the No. 1 and No. 2 positions:

C (1) If CADC is installed, depress and hold self test switch C on front of unit.

C (2) After the airspeed indicator stabilizes at 246 knots C and the flag retracts, check that the parameter display C reading is 292 ± 20 counts.

C (3) Release self test switch.

C D. If DADC is installed, initiate slew test (Ref. MM34-14-00).

C (1) After airspeed indicator stabilizes at 280 knots and
C after slew test is initiated (approximately 2 minutes),
C depress and hold self test switch on front of unit.

C (2) This will hold airspeed indicator reading at 280 knots,
C check that parameter display reading is 360 ± 20
C counts.

C (3) Release self test switch.

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO
C AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED)
C WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C E. Perform check at DFDR in AEEA if first check was at LOOP
C RECORDER in FESC.

C 7. Angle of Attack (See 31-32-10 Schem 3)

C A. Assure the following circuit breakers are closed:

C		CB1	
CR		AUTO THROT SERVO	A1
CR		AFCS NO 2 SYS - SPEED CONT	A20
C		FCES COMPUTERS DC	B4
C		FCES COMPUTERS AC & L AOA	B5
C		FCES STICK SHAKE	B6
C		CB2	
C		R AOA	F1
C		STICK SHAKE	F2
C		CB3	
C		AIDS/FLT RCDR DC	H10
C		AIDS/FLT RCDR Aϕ	H11
C		AIDS/FLT RCDR Bϕ	H12
C		AIDS/FLT RCDR Cϕ	H13

C B. Assure the ALPHA switchlights are in the off position on the C AIR DATA SENSOR HEAT control panel located on the Pilot's C overhead panel.

C C. Set the parameter select switches as follows:

C	(1)	Loop position	Left 114	Right 117
C	(2)	DFDR position	Left 011	Right 042

C D. On the Pilot's overhead panel, press the Stall Warning Test C Switch.

C E. Check that parameter display reads 150 ± 10 for both left C and right AOA's.

C F. Open (deenergized) AIDS Circuit Breaker closed in Step 7A.

C G. Install 563 tester at DFDR ATE connector in AEEA.

C H. Close (energized) AIDS Circuit Breaker opened in Step 7H.

C I. Position mode select switch to L1011 DFDR. Press Stall
C Warning Test Switch and check that parameter display reads
C 150 ± 10.

C J. Turn off Stall Warning switch lights, open (deenergize) AIDS
C Circuit Breaker closed in Step 7J and remove 563 teste
C r.

C 8. Pitch Attitude (See 31-32-10 Schem 28)

C A. Assure that the following circuit breakers are closed:

C CB1

C VG/INS 1 G6

C CAPT ADI F2

C CB3

C AIDS/FLT RCDR DC H10

C AIDS/FLT RCDR Aϕ H11

C AIDS/FLT RCDR Bϕ H12

C AIDS/FLT RCDR Cϕ H13

C B. Check that the CAPT INSTR SOURCE SELECT for Attitude is in
C the normal position.

C C. Set the parameter select switches as follows:

C (1) Loop position 082

C (2) DFDR position 022

C D. Prepare for Testing

C (1) Domestic

C (a) Install EQ 1236 V.G. adapter harness on No. 1 V.G.
C Tilt and block to obtain test readings on Capts
C ADI.

C (2) International

C (a) Prepare No. 1 INS for pitch torquing as detailed
C in INS functional testing section 34-43-00 cause
C INS to torque to test readings shown in Table 501.

C E. Check that 563 tester display reads as shown in Table 501.

C Table 501

Pitch Attitude	Required Display Reading
Level ± .5°	000 ± 5
5° ± .5° Nose Down (-)	985 ± 5
Level ± .5°	000 ± 5
5° ± .5° Nose Up (+)	014 ± 5

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED) WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

- C • AIDS/DFDR DC (H10),
- C • AIDS/DFDR Aϕ (H11),
- C • AIDS/DFDR Bϕ (H12),
- C • AIDS/DFDR Cϕ (H13).

C F. Perform check at DFDR in AEEA if first check was at LOOP RECORDER in FESC.

C G. Remove test equipment and adaptor harness.

C 9. Roll Attitude (See 31-32-10 Schem 28)

C A. Assure that the following circuit breakers are closed:

C CB1

C VG/INS 1 G6

C CAPT ADI F2

C CB3

C AIDS/FLT RCDR DC H10

C AIDS/FLT RCDR Aφ H11

C AIDS/FLT RCDR Bφ H12

C AIDS/FLT RCDR Cφ H13

C B. Check that the CAPT INSTR SOURCE SELECT for Attitude is in
C the normal position.

C C. Set parameter select switch as follows:

CR (1) Loop position C84

C (2) DFDR position 029

C D. Prepare for Testing

C (1) Domestic

C (a) Install EQ 1236 V.G. adaptor harness on No. 1 V.G.
C Tilt and block to obtain test readings on Capts
C ADI.

C (2) International

C (a) Prepare No. 1 INS for roll torquing as detailed in
C INS functional testing section 34-43-00 cause INS
C to torque to test readings shown on Table 502.

C E. Check that 563 tester display reads as shown in Table 502.

C Table 502

Roll Attitude	Required Display Reading
Level ± 0.5°	000 ± 5
5° ± .5° Right Bank (+)	014 ± 5
Level ± 0.5°	000 ± 5
5° ± .5° Left Bank (-)	985 ± 5

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED) WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C F. Perform check at DFDR in AEEA if first check was at LOOP RECORDER in FESC.

C G. Remove test equipment and adaptor harness.

C 10. Magnetic Heading (See 31-32-10 Schem 29)

C A. Assure the following circuit breakers are closed:

CB3		CB1	
AIDS/FLT RCDR DC	H10	CMPS CPLR-1	K19
AIDS/FLT RCDR Aϕ	H11	CMPS CPLR-1	K24
AIDS/FLT RCDR Bϕ	H12	RDDMI NO. 1	K25
AIDS/FLT RCDR Cϕ	H13	CMPS CPLR-2	J19
		RDDMI NO. 2	J20
		COMP COUPLER	G7
		CMPS CPLR	G26
		CAPT HSI	F3
		INSTR XFMR NO. 1	F5
		F/O HSI	F21
		CAPT RDDMI	E20
		INSTR XFMR NO. 3	D27
		F/O RDDMI	E3
		INSTR XFMR NO. 2	D9
		INSTR COMPRN MON PWR	D8
		INSTR COMPRN MON	D26
		ALT SOURCE SEL CAPT INSTR	E1
		F/O INSTR	E2

C B. Set parameter select switches as follows:

C (1) Loop position 174

C (2) DFDR position 030

C. In the cockpit at the pilot's overhead panel, select DG mode on compass system No. 1. With the slew switch, slew the compass to the headings called out in Table 503. Heading to be determined from Captain's HSI. Check that the parameter display readings are those called out in Table 503.

Table 503

No. 1 Compass Heading	Required 563 Tester Readings
90° ± 1°	250 ± 5
180° ± 1°	500 ± 5
270° ± 1°	750 ± 5
360° ± 1°	000 ± 5

D. Open (deenergize) AIDS Circuit Breakers closed in Step 10A.

E. Remove tester from LOOP RECORDER in FESC and install 563 tester at DFDR ATE connector in AEEA. Position MODE SELECT switch to L1011 DFDR position and PARAMETER SELECT switches as required.

F. Close (energize) AIDS circuit breaker opened in Step 10D.

G. With Capts HSI reading at 360° check that parameter display reads 000 ± 5.

H. Open (deenergized) AIDS circuit breaker closed in Step 10F.

I. Remove 563 tester and adapter harness.

C 11. Total Air Temperature (See 31-32-10 schem 35)

C A. Assure the following circuit breakers are closed:

C CB3

C TAT/EPRL Bϕ R12

C AIDS/FLT RCDR DC H10

C AIDS/FLT RCDR Aϕ H11

C AIDS/FLT RCDR Bϕ H12

C AIDS/FLT RCDR Cϕ H13

C B. Set the parameter select switches as follows:

C (1) Loop position 119

C (2) DFDR position 023

C C. Check the TAT indicator reading. Tester display should read as shown in Table 504.

C Table 504

TAT°C	TEST SET READING	TAT°C	TEST SET READING
0	500 ±5	17	621
1	507	18	629
2	514	19	636
3	521	20	643
4	529	21	650
5	536	22	657
6	543	23	664
7	550	24	671
8	557	25	679
9	565	26	686
10	572	27	693

C Table 504 (Cont)

TAT°C	TEST SET READING	TAT°C	TEST SET READING
11	579	28	700
12	586	29	707
13	593	30	714
14	600	31	721
15	607	32	729
16	614	33	736

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED) WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

- AIDS/DFDR DC (H10),
- AIDS/DFDR Aφ (H11),
- AIDS/DFDR Bφ (H12),
- AIDS/DFDR Cφ (H13).

D. Perform check at DFDR in AEEA if first check was at LOOP RECORDER in FESC.

E. Remove 563 tester.

C 12. Altitude Fine Synchro (Altimeter Baro-set)

C A. Assure the following circuit breakers are closed:

CB1		CB3	
AIR DATA CMPTR	G8	AIDS/FLT RCDR DC	H10
CAPT IAS/MACH	F1	AIDS/FLT RCDR Aϕ	H11
CAPT ALTM	F4	AIDS/FLT RCDR Bϕ	H12
CAPTS INSTR	E1	AIDS/FLT RCDR Cϕ	H13
F/O INSTR	E2		
VERT SP IND	E4		
INSTR CMPRN MON PWR	D8		
AIR DATA CMPTR	G27		
F/O IAS/MACH	F19		
F/O ALTM	F22		
SAT/TAS	F27		
VERT SP IND	E21		
INSTR CMPRN MON	D26		
ALT ALERT NO. 1 & 2	K27, J21		

C B. Set parameter select switches as follows:

C (1) Loop position Capt 290

C (2) DFDR position Capt 8

C (3) Loop position F/O 291

C (4) DFDR position F/O 10

C C. Using baro-set knob, set Captain's Altimeter to 29.92" hg. Record altimeter reading and parameter display reading on tester.

C NOTE: Adjust baro scale from a lower reading up to 29.92. Do not overshoot and bracket reading.

C D. Re-set baro scale to 29.38" hg. Check that altimeter reads between 484 and 524 feet lower than reading in Step (C). The 563 tester parameter display should decrease between 35 and 38 counts from reading recorded in Step (C).

C E. Re-set baro scale to 30.47" hg. Check that altimeter reading is between 484 and 524 feet higher than reading recorded in Step (C). The 563 tester display should increase between 35 and 38 counts above reading recorded in Step (C).

C F. Perform Steps (C), (D), and (E) using F/O altimeter.

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED) WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C G. Perform check at DFDR in AEEA if first check was at LOOP RECORDER in FESC.

C H. Remove 563 tester.

C 13. Mach Number (See 31-32-10 Schem 25)

C A. Assure the following circuit breakers are closed:

CB1		CB3	
INSTR CMPRN MON PWR	D8	AIDS/FLT RCDR DC	H10
INSTR CMPRN MON	D26	AIDS/FLT RCDR Aϕ	H11
CAPT INSTR	E1	AIDS/FLT RCDR Bϕ	H12
F/O INSTR	E2	AIDS/FLT RCDR Cϕ	H13
VERT SP IND	E4		
VERT SP IND	E21		
IAS/MACH	F1		
ALTM	F4		
IAS/MACH	F19		
ALTM	F22		
AIR DATA CMPTR	G8		
AIR DATA CMPTR	G27		

C B. Set parameter select switches as follows:

C (1) Loop position 171

C (2) DFDR position 045

C C. In the FESC, perform one of the following test:

C (1) If CADC is installed in No. 1 position depress and hold self test switch on front of unit.

C (2) After the Captain's mach indicator stabilizes at .900 mach and the flag retracts, check that the parameter display reading is 700 ± 15 counts.

C (3) Release self test switch.

C D. If DADC is installed in No. 1 position initiate slew test (Ref. MM34-14-00).

C (1) After the Captain's mach indicator stabilizes at .860 mach and after slew test is initiated (approximately 2 minutes), depress and hold self test switch on front of unit.

C (2) This will hold mach indicator reading at .860 mach, check that the parameter display reading is 660 ± 15 counts.

C (3) Release self test switch.

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED) WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C E. Perform check at DFDR in AEEA if first check was at LOOP RECORDER in FESC.

C F. Return all switches and C/B's to original positions.

C G. Remove 563 tester and adaptor harness.

C 14. Radio Altitude (See 31-32-12 Schem 22)

C A. Assure the following circuit breakers are closed:

CB1		CB3		
RADIO ALTM	D4	AIDS/FLT RCDR	DC	H10
		AIDS/FLT RCDR	Aϕ	H11
		AIDS/FLT RCDR	Bϕ	H12
		AIDS/FLT RCDR	Cϕ	H13

C B. Set parameter select switches as follows:

C (1) Loop position 053

C (2) DFDR position 043

C C. Connect R&R 90202 Radio Altimeter tester to test connector on front panel of LRRA R/T unit number one in MESC.

C D. Drive Capt's radio altitude indicator to 100 ± 3 feet. Parameter display should read 91 ± 4 counts.

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED) WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C E. Perform check at DFDR in AEEA if first check was at LOOP RECORDER in FESC.

C F. Remove 563 tester.

C 15. Selected Course

C A. Assure the following circuit breakers are closed:

CB1		CB3		
F/O RDDMI	E3	AIDS/FLT RCDR	DC	H10
CAPT RDDMI	E20	AIDS/FLT RCDR	Aφ	H11
CAPT HSI	F3	AIDS/FLT RCDR	Bφ	H12
F/O HSI	F21	AIDS/FLT RCDR	Cφ	H13
VOR RCVR	G1			
PREAMP	G2			
VOR RCVR	G19			
PREAMP	G20			
VOR-1	K21			
RDDMI 1	K25			
RDDMI 2	J20			
VOR-2	J22			

C B. Set parameter select switches as follows:

C (1) Loop position No. 1 system 177

C (2) DFDR position No. 1 system 021

C (3) Loop position No. 2 system 176

C (4) DFDR position No. 2 system 039

C C. In cockpit at overhead panel, select DG mode on both No. 1 and No. 2 compass systems. Using slew switch drive both systems to zero degrees as read on the HSI's.

C D. Set the Course Select on the Nav Mode Select Panel to 80 degrees on the No. 1 system and 160 degrees on the No. 2 system. Check that parameter display reads 222 ± 6 counts on the No. 1 system, and 444 ± 6 counts on the No. 2 system.

C E. Return compass systems to mag.

C C C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED) WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C F. Perform check at DFDR in AEEA if first check was at LOOP C RECORDER in FESC.

C G. Remove test equipment and adaptor harness.

C 16. Engine Thrust (EPR's) (See 31-32-10 Schem 34)

C A. Assure the following circuit breakers are closed:

C CB2

C EPR IND LTS H6

C CB3

C EPR IND No. 1 L5

C EPR IND No. 2 L11

C EPR IND No. 3 L17

C AIDS/FLT RCDR DC H10

C AIDS/FLT RCDR Aϕ H11

C AIDS/FLT RCDR Bϕ H12

C AIDS/FLT RCDR Cϕ H13

C B. Set parameter select switches as follows:

C (1) LOOP position

C (a) Engine No. 1 054

C (b) Engine No. 2 120

C (c) Engine No. 3 191

C (2) DFDR position

C (a) Engine No. 1 033

C (b) Engine No. 2 034

C (c) Engine No. 3 035

C C. Connect pitot/static tester pitot line to P inlet connection
C of EPR transmitter. Increase pressure until EPR indicator
C reads 1.50 plus or minus 0.004 EPR.

C D. Check that parameter display reads 500 plus or minus 10
C counts.

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO
C AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED)
C WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C E. Perform check at DFDR in AEEA if first check was at LOOP
C RECORDER in FESC.

C F. Remove pitot/static tester and 563 tester.

C 17. Rudder Pedal Position (See 31-32-10 Schem 5)

C A. Assure the following circuit breakers are closed:

C CB3

C AIDS/FLT RCDR DC H10

C AIDS/FLT RCDR Aϕ H11

C AIDS/FLT RCDR Bϕ H12

C AIDS/FLT RCDR Cϕ H13

C B. Set parameter select switches as follows:

C (1) Loop position 106

C (2) DFDR position 013

C CAUTION: VERIFY THE FOLLOWING BEFORE PRESSURIZING ANY HYD. SYSTEM:

C • PITCH TRIM, YAW TRIM, AND ROLL TRIM ARE AT ZERO DEGREES.

C • LANDING GEAR DOWNLOCK SAFETY PINS AND DOOR SAFETY DEVICES ARE INSTALLED.

C • TRAVEL AREAS OF ALL FLIGHT CONTROL SURFACES AND MAIN GEAR DOORS ARE CLEAR.

C C. Pressurize rudder hyd. system.

C D. Operate rudder pedals several times each way then permit to stabilize at neutral. Check that 563 display reads 500 plus or minus 10 counts.

C E. Set Yaw trim for maximum left turn, the testers display should read 385 plus or minus 40 counts.

C F. When adjustment is required, preceed as follows:

C (1) In FESC remove Captain's control column stick shaker
C guard box to gain access to rudder pedal potentiometer.
C Locate potentiometer on floor web structure just to
C left of Captain's left rudder pedal.

C (2) Set Yaw trim to zero, operate rudder pedals several
C times each way then permit to stabilize at neutral.

C (3) Loosen nut attaching arm to potentiometer shaft.
C Loosen jam nut on potentiometer shaft.

C (4) Rotate potentiometer body to take up any looseness in
C the guide pin hole, while observing 563 tester
C parameter display. Adjust to 500 plus or minus 10
C counts.

C NOTE: If insufficient adjustment is available by this
C method, it will be necessary to rotate
C potentiometer mounting plate by removing bolt
C securing mounting plate to floor web structure.
C (On same aircraft plate is secured by a rivet.
C Drill out, slot hole and install a bolt with
C lock washers.)

C (5) Tighten potentiometer jam nut and recheck parameter
C display for reading of 500 plus or minus 10 counts.

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO
C AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED)
C WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C G. Perform check at DFDR in AEEA if first check was at LOOP
C RECORDER in FESC.

C H. Remove 563 tester.

C 18. Rudder Position (See 31-32-10 Schem 7)

A. Assure the following circuit breakers are closed:

CB1			CB3		
SURF POSN IND	J23		AIDS/FLT RCDR	DC	H10
			AIDS/FLT RCDR	Aϕ	H11
			AIDS/FLT RCDR	Bϕ	H12
			AIDS/FLT RCDR	Cϕ	H13

B. Set parameter select switches as follows:

(1) Loop position 260

(2) DFDR position 014

CAUTION: VERIFY THE FOLLOWING BEFORE PRESSURIZING ANY HYD. SYSTEM:

- PITCH TRIM, YAW TRIM, AND ROLL TRIM ARE AT ZERO DEGREES.
- LANDING GEAR DOWNLOCK SAFETY PINS AND DOOR SAFETY DEVICES ARE INSTALLED.
- TRAVEL AREAS OF ALL FLIGHT CONTROL SURFACES AND MAIN GEAR DOORS ARE CLEAR.

C. Pressurize rudder hyd. system..

D. Check that rudder is in the faired position, with the lower trailing edge of rudder aligned with fixed fairing. Surface position indicator should read zero degrees, and parameter display should read 500 plus or minus 10 counts.

E. Operate Yaw trim for full left turn. Surface position indicator should read 10 degrees left turn and parameter display should be 389 plus or minus 10 counts..

C F. When adjustment is required proceed as follows:

C (1) Open vertical stabilizer access door 324CL (Ref. C 6-40-00)

C (2) Set Yaw trim to zero degrees, and check that rudder is C in the faired position with the lower trailing edge C aligned with fixed fairing.

C (3) Loosen transmitter clamp bolt and rotate transmitter C until parameter display reads 500 plus or minus 10 C counts. Check that surface position indicator reads C zero.

C (4) Tighten transmitter clamp bolt and verify that C parameter display still reads 500 plus or minus 10 C counts.

C (5) Reinstall access door.

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO C AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED) C WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C G. Perform check at DFDR in AEEA if first check was at LOOP C RECORDER in FESC.

C H. Remove 563 tester.

C 19. Control Column Position (Sec 31-32-10 Schem 8)

C A. Assure the following circuit breakers are closed:

C CB1

C TRIM AGMT AC/DC (CHAN 1) A7-8

C TRIM AGMT AC/DC (CHAN 1) A25-26

C FCES COMPUTERS DC/AC B4-5

C NO. 1 AFT COUPLER B9

C NO. 2 AFT COUPLER B27

C SURF POSN IND J23

C CB2

C PILOTS IND LT TEST H8-10

C STABILIZER SERVO BCAD H16-19

C CB3

C AIDS/FLT RCDR DC H10

C AIDS/FLT RCDR Aϕ H11

C AIDS/FLT RCDR Bϕ H12

C AIDS/FLT RCDR Cϕ H13

C B. Set parameter select switches as follows:

C (1) Loop position Capts 090 F/O's 092

C (2) DFDR position Capts 018 F/O's 019

CR CAUTION: VERIFY THE FOLLOWING BEFORE PRESSURIZING ANY HYD. SYSTEM:

C • PITCH TRIM, YAW TRIM, AND ROLL TRIM ARE AT ZERO
C DEGREES.

C • LANDING GEAR DOWNLOCK SAFETY PINS AND DOOR SAFETY
C DEVICES ARE INSTALLED.

C • TRAVEL AREAS OF ALL FLIGHT CONTROL SURFACES AND
C MAIN GEAR DOORS ARE CLEAR.

CR C. Pressurize the hyd. system to the stabilizer.

CR D. Set pitch trim to 4 units.

CR E. Turn off hyd. pressure, and install control column rig pin
CR R9 per 27-41-00 adjustment/test procedure, in Capts control
CR column.

CR F. Check that parameter display reads 500 plus or minus 10
CR counts.

CR G. Remove rig pin, pressurize hyd. systems, and set pitch trim
CR to 10 units. Parameter display should read 440 plus or
CR minus 20 counts.

CR H. Perform steps (E) through (G) for F/O's control column.

CR I. When adjustment is required proceed as follows:

C (1) Set pitch trim to 4 units, turn off hyd. pressure, and
C install rig pin R9 per 27-41-00.

C (2) In FESC remove AFCS/MLG accessory unit and Speed
C Control Computer from center rack for Captain's
C potentiometer, or two forward zone temp. controllers
C for F/O's potentiometer.

C (3) Remove drip shield above equipment rack.

C (4) Locate potentiometer on bottom of cable drive arm.
C Loosen jam nut attaching potentiometer to mounting
C bracket.

C (5) Rotate potentiometer body to take up any looseness in
C the guide pin hole while observing 563 tester parameter
C display. Adjust to 500 plus or minus 10 counts.

C NOTE: If insufficient adjustment is available by this
C method, it will be necessary to rotate
C potentiometer mounting plate by removing bolt
C securing plate to cable drive arm. (On some
C aircraft plate is secured by a rivet. Drill
C out, slot hole and install a bolt with lock
C washers.)

C (6) Tighten jam nut on potentiometer and recheck parameter
C display for a reading of 500 plus or minus 10 counts.

CR J. Reset pitch disconnect on center console.

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO
C AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED)
C WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

CR K. Perform check at DFDR in AEEA if first check was at LOOP
CR RECORDER in FESC.

CR L. Remove 563 tester.

C 20. Pitch Trim Position (See 31-32-10 Schem 8)

C A. Assure the following circuit breakers are closed:

C CB1

C TRIM AGMT AC/DC (CHAN 1)	A7-8
C TRIM AGMT AC/DC (CHAN 1)	A25-26
C FCES COMPUTERS DC/AC	B4-5
C NO. 1 AFT COUPLER	B9
C NO. 2 AFT COUPLER	B27
C SURF POSN IND	J23

C CB2

C PILOTS IND LT TEST	H8-10
C STABILIZER SERVO BCAD	H16-19

C CB3

C AIDS/FLT RCDR	DC	H10
C AIDS/FLT RCDR	Aϕ	H11
C AIDS/FLT RCDR	Bϕ	H12
C AIDS/FLT RCDR	Cϕ	H13

C B. Set parameter switches as follows:

C (1) Loop position 088

C (2) DFDR position 020

C CAUTION: VERIFY THE FOLLOWING BEFORE PRESSURIZING ANY HYD. SYSTEM:

- PITCH TRIM, YAW TRIM, AND ROLL TRIM ARE AT ZERO DEGREES.
- LANDING GEAR DOWNLOCK SAFETY PINS AND DOOR SAFETY DEVICES ARE INSTALLED.
- TRAVEL AREAS OF ALL FLIGHT CONTROL SURFACES AND MAIN GEAR DOORS ARE CLEAR.

C. Pressurize hyd. system to stabilizer.

D. With pitch trim set at zero degrees check that parameter display reads 100 plus or minus 100 counts.

E. Set pitch trim to 4 degrees. Check that parameter display reads 554 plus or minus 80 counts.

F. Remove hyd. power.

CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED) WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

- AIDS/DFDR DC (H10),
- AIDS/DFDR Aϕ (H11),
- AIDS/DFDR Bϕ (H12),
- AIDS/DFDR Cϕ (H13).

G. Perform check at DFDR in AEEA if first check was at LOOP RECORDER in FESC.

H. Remove 563 tester.

C 21. Stabilizer Position (See 31-32-10 Schem 9)

C A. Assure the following circuit breakers are closed:

CB1		CB3		
SURF POSN IND	J23	AIDS/FLT RCDR	DC	H10
		AIDS/FLT RCDR	Aφ	H11
		AIDS/FLT RCDR	Bφ	H12
		AIDS/FLT RCDR	Cφ	H13

C B. Set parameter select switches as follows:

C (1) Loop position 239

C (2) DFDR position 017

C C. With hyd. pressure off check that parameter display reads 500 plus or minus 10 counts.

C NOTE: Surface position indicator should read +1 degree.

C CAUTION: VERIFY THE FOLLOWING BEFORE PRESSURIZING ANY HYD. SYSTEM:

C • PITCH TRIM, YAW TRIM, AND ROLL TRIM ARE AT ZERO DEGREES.

C • LANDING GEAR DOWNLOCK SAFETY PINS AND DOOR SAFETY DEVICES ARE INSTALLED.

C • TRAVEL AREAS OF ALL FLIGHT CONTROL SURFACES AND MAIN GEAR DOORS ARE CLEAR.

C D. Pressurize the stabilizer hyd. system.

C E. Set pitch trim to 4 degrees. Check that parameter display reads 555 plus or minus 10 counts. Surface position indicator should read minus 4 degrees.

C NOTE: Hands off control column. Column should be free to move.

C F. When adjustment is required proceed as follows:

C (1) Verify that all four hydraulic systems are shut off. Open fuselage afterbody access door 317BB (Ref. 6-40-00). Crawl over stabilizer to right side of stabilizer rear spar.

C (2) Loosen transmitter mount clamp bolt. Rotate transmitter body until parameter display reads 500 plus or minus 10 counts. Surface position indicator should read plus 1 degree.

C (3) Recheck steps (D) and (E).

C G. Turn off hyd. systems.

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED) WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C H. Perform check at DFDR in AEEA if first check was at LOOP RECORDER in FESC.

C I. Remove 563 tester.

C 22. Control Wheel Position (See 31-32-10 Schem 5)

C A. Assure the following circuit breakers are closed:

C CB1

C FCES DC/AC B4-5

C SPOILER DWELL DC/AC B7-8

C SURFACE POS IND J23

C CB2

C PILOTS IND LT TEST H8-10

C DLC SERVO HYD AB H14-15

C SPOILER HYD ABCD J15-18

C AILERON HYD CABD J19-22

C CB3

C AIDS/FLT RCDR DC H10

C AIDS/FLT RCDR Aϕ H11

C AIDS/FLT RCDR Bϕ H12

C AIDS/FLT RCDR Cϕ H13

C B. Set parameter select switches as follows:

C (1) Loop position Capts 100 F/O's 103

C (2) DFDR position Capts 027 F/O's 028

C CAUTION: VERIFY THE FOLLOWING BEFORE PRESSURIZING ANY HYD.
C SYSTEM:

C • PITCH TRIM, YAW TRIM AND ROLL TRIM ARE AT ZERO
C DEGREES.

C • LANDING GEAR DOWNLOCK SAFETY PINS AND DOOR SAFETY
C DEVICES ARE INSTALLED.

C • TRAVEL AREAS OF ALL FLIGHT CONTROL SURFACES AND
C MAIN GEAR DOORS ARE CLEAR.

C C. Pressurize the hydraulic system to the Ailerons.

C D. Pull roll disconnect and set roll trim at zero.

C E. Operate Capts control wheel full travel both directions then center wheel on neutral index mark on control column hub. Check that 563 tester reads 500 ± 10 counts.

C F. Set roll trim for max left roll and check that 563 tester reads 671 ± 25 counts.

C G. Perform steps (E) and (F) for F/O's control wheel.

C H. When adjustment is required proceed as follows:

C (1) In FESC locate potentiometer on bottom of Capts and/or F/O's torque limiter assembly.

C (2) With aileron hyd. system pressurized set pitch trim to zero and center control wheel on neutral index mark.

C (3) Loosen jam nut attaching pot to mounting bracket, and rotate pot body to take up any looseness in the guide pin hole while observing 563 tester. Adjust to 500 ± 10 counts.

C NOTE: If insufficient adjustment is available by this method, it will be necessary to rotate pot mounting plate by removing bolt securing plate. (On some aircraft plate is secured by a rivet. Drill out, slot hole and install a bolt with lock washers.)

C (4) Tighten jam nut on potentiometer and recheck steps (E) and (F).

C I. Reset roll disconnect.

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED) WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C J. Perform check at DFDR in AEEA if first check was at LOOP RECORDER in FESC.

C K. Remove 563 tester.

C 23. Aileron Position (See 31-32-10 Schem 6)

C A. Assure the following circuit breakers are closed:

CB1		CB3		
SURF POSN IND	J23	AIDS/FLT RCDR	DC	H10
		AIDS/FLT RCDR	Aφ	H11
		AIDS/FLT RCDR	Bφ	H12
		AIDS/FLT RCDR	Cφ	H13

C B. Set parameter select switches as follows:

C (1) Loop position

C (a) Left inboard 230

C (b) Right outboard 233

C (2) DFDR position

C (a) Left inboard 024

C (b) Right outboard 026

C CAUTION: VERIFY THE FOLLOWING BEFORE PRESSURIZING ANY HYD. SYSTEM:

C • PITCH TRIM, YAW TRIM AND ROLL TRIM ARE AT ZERO DEGREES.

C • LANDING GEAR DOWNLOCK SAFETY PINS AND DOOR SAFETY DEVICES ARE INSTALLED.

C • TRAVEL AREAS OF ALL FLIGHT CONTROL SURFACES AND MAIN GEAR DOORS ARE CLEAR.

C C. Pressurize aileron hydraulic systems.

C D. Position ROLL trim wheel on center console to neutral
C aileron position (Ref. Trim Bias Table 505).

C NOTE: Normally, neutral aileron position is that condition
C when the roll trim wheel and aileron control wheel
C indexes are aligned with the neutral indexes.
C However, on those aircraft incorporating trim bias,
C the roll trim wheel and aileron control wheel indexes
C are not aligned with the neutral indexes. A decal on
C the underside of the alternate landing gear control
C cover specifies the roll trim bias, if any, for the
C aircraft. See Trim Bias Table 505.

ROLL TRIM BIAS
Table 505

AIRCRAFT	TRIM BIAS	ROLL TRIM POSITION FOR NEUTRAL AILERON
11001	2.7 RWD	2.7 LWD
11014	2.3 RWD	2.3 LWD
11011 and 11028	2.0 RWD	2.0 LWD
11018	1.5 RWD	1.5 LWD
11012, 11017,	1.0 RWD	1.0 LWD
11019, 11021,	1.0 RWD	1.0 LWD
11023, 11025,	1.0 RWD	1.0 LWD
11027, 11031	1.0 RWD	1.0 LWD

All other aircraft not listed have zero trim bias.

C E. With ailerons in neutral 563 tester should read 500 ± 10
C counts.

C F. Position roll trim to max right roll position, 563 tester
C should read 578 ± 25 counts.

C NOTE: On trim bias aircraft add 11 counts for each degree
C of trim bias.

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO
C AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED)
C WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C G. Perform check at DFDR in AEEA if first check was at LOOP
C RECORDER in FESC.

C H. Remove 563 tester.

C 24. Spoiler Position (See 31-32-10 Schem 11)

A. Assure the following circuit breakers are closed:

CB1		CB3		
SURF POSN IND	J23	AIDS/FLT RCDR	DC	H10
		AIDS/FLT RCDR	Aϕ	H11
		AIDS/FLT RCDR	Bϕ	H12
		AIDS/FLT RCDR	Cϕ	H13

B. Set parameter select switches as follows:

(1) Loop position

(a) Left outboard (Spoiler Left No. 5 Left) 245

(b) Left inboard (Spoiler Left No. 4 Left) 242

(c) Right outboard (Spoiler Right No. 6 Right) 257

(d) Right inboard (Spoiler Right No. 2 Right) 248

(2) DFDR position

(a) Left outboard 051

(b) Left inboard 052

(c) Right outboard 053

(d) Right inboard 054

CAUTION: VERIFY THE FOLLOWING BEFORE PRESSURIZING ANY HYD. SYSTEM:

- PITCH TRIM, YAW TRIM, AND ROLL TRIM ARE AT ZERO DEGREES.
- LANDING GEAR DOWNLOCK SAFETY PINS AND DOOR SAFETY DEVICES ARE INSTALLED.
- TRAVEL AREAS OF ALL FLIGHT CONTROL SURFACES AND MAIN GEAR DOORS ARE CLEAR.

C. Pressurizes Spoiler hydraulic systems.

C D. Position trailing edge flaps full up, and center control
C wheel. Operate speed brake lever from zero to max a few
C times then return to zero. Check that 563 tester reads 000
C to 010 counts, for all spoilers.

C E. Operate speed brake to max and check that 563 tester reads
C from 600 minimum to 680 maximum counts for all spoiler
C positions.

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO
C AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED)
C WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C F. Perform check at DFDR in AEEA if first check was at LOOP
C RECORDER in FESC.

C G. Remove 563 tester.

C 25. Trailing Edge Flaps (See 31-32-10 Schem 10)

C A. Assure the following circuit breakers are closed:

C CB1

C NO. 2 ASYM BRAKE TE FLAP J11

C LOCK LIGHT TE FLAP J13

C CB2

C F.E. IND LT TEST H1-5

C PILOTS IND LT TEST H8-10

C FLAP LOAD RELIEF CHAN-1 H12

C FLAP LOAD RELIEF IND H13

C FLAP LOAD RELIEF CHAN-2 H20

C NO. 1 ASYM BRAKE TE FLAP H21

C CB3

C AIDS/DFDR DC H10

C AIDS/DFDR Aϕ H11

C AIDS/DFDR Bϕ H12

C AIDS/DFDR Cϕ H13

C POS IND TE FLAPS K16

C B. Set parameter select switches as follows:

C (1) Loop position

C (a) Left 284

C (b) Right 282

C (2) DFDR position

C (a) Left 064

C (b) Right 059

C CAUTION: VERIFY THE FOLLOWING BEFORE PRESSURIZING ANY HYD. SYSTEM:

- PITCH TRIM, YAW TRIM AND ROLL TRIM ARE AT ZERO DEGREES.
- LANDING GEAR DOWNLOCK SAFETY PINS AND DOOR SAFETY DEVICES ARE INSTALLED.
- TRAVEL AREAS OF ALL FLIGHT CONTROL SURFACES AND MAIN GEAR DOORS ARE CLEAR.

C. Pressurize flap hydraulic systems.

D. Position trailing edge flaps full up. The 563 tester should read 000 ± 50 counts.

E. Position trailing edge flaps at the 33° position. The 563 tester should read 662 ± 25 counts.

F. Return flaps to zero. Remove hyd. power.

CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED) WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

- AIDS/DFDR DC (H10),
- AIDS/DFDR Aϕ (H11),
- AIDS/DFDR Bϕ (H12),
- AIDS/DFDR Cϕ (H13).

G. Perform check at DFDR in AEEA if first check was at LOOP RECORDER in FESC.

H. Remove 563 tester.

C 26. Leading Edge Flaps (See 31-32-10 Schem 12)

C A. Assure the following circuit breakers are closed:

C CB1

C NO. 2 ASYM BRAKE LE SLAT J10

C LOCK LIGHT LE SLAT J12

C CB2

C FE IND LT TEST H1-5

C PILOTS IND LT TEST H8-10

C NO. 1 ASYM BRAKE LE SLAT H22

C CB3

C AIDS/FLT RCDR DC H10

C AIDS/FLT RCDR Aϕ H11

C AIDS/FLT RCDR Bϕ H12

C AIDS/FLT RCDR Cϕ H13

C LE SLAT EXT LT K18

C POSN IND LE SLAT K16

C B. Set parameter select switches as follows:

C (1) Loop position 286

C (2) DFDR position 061

C CAUTION: VERIFY THE FOLLOWING BEFORE PRESSURIZING ANY HYD. SYSTEM:

C • PITCH TRIM, YAW TRIM, AND ROLL TRIM ARE AT ZERO DEGREES.

C • LANDING GEAR DOWNLOCK SAFETY PINS AND DOOR SAFETY DEVICES ARE INSTALLED.

C • TRAVEL AREAS OF ALL FLIGHT CONTROL SURFACES AND MAIN GEAR DOORS ARE CLEAR.

C C. Pressurizes flap hydraulic system

C D. With flaps full up (leading edge flaps retracted) check that
C 563 tester ads 000 ± 15 counts.

C E. With flaps down (leading edge flaps extended) check that 563
C tester reads 455 ± 15 counts.

C F. Return flaps to zero. Remove hyd. power.

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO
C AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED)
C WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C G. Perform check at DFDR in AEEA if first check was at LOOP
C RECORDER in FESC.

C H. Remove 563 tester.

C 27. Glideslope Deviation (See 31-32-12 Schem 28)

C A. Assure the following circuit breakers are closed:

C CB1

C Audio Cont - Capt - F/E A12

C Audio Cont - F/O & Obs A13

C Flt Intph Ampl A14

C Capt ADI F2

C Capt HSI F3

C F/O ADI F20

C F/O HSI F21

C ILS G4

C ILS G22

C CB3

C Audio Cont - Capt & F/E C16

C Audio Cont - F/O & Obs C17

C Audio Cont - Flt Intph Ampl C18

C B. Set parameter select switches as follows:

C (1) Loop position 235

C (2) DFDR position 012

C C. Using ILS tester as directed in 34-33-00 center Glide Slope
C deviation pointer in the No. 1 HSI. Check that 563 tester
C reads 500 ± 20 counts.

C D. Using tester drive deviation pointer to 1 dot fly down.
C Check that 563 tester reads 875 ± 40 counts.

C E. Using tester drive deviation pointer to 1 dot fly up. Check
C that 563 tester reads 125 ± 40 counts.

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO
C AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED)
C WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C F. Perform check at DFDR in AEEA if first check was at LOOP
C RECORDER in FESC.

C G. Remove tester.

C 28. Localizer Deviation (See 31-32-12 Schem 28)

C A. Assure the following circuit breakers are closed:

C CB1

C Audio Cont - Capt - F/E A12

C Audio Cont - F/O & Obs A13

C Flt Intph Ampl A14

C Capt ADI F2

C Capt HSI F3

C F/O ADI F20

C F/O HSI F21

C ILS G4

C ILS G22

C CB3

C Audio Cont - Capt & F/E C16

C Audio Cont - F/O & Obs C17

C Audio Cont - Flt. Intph Ampl C18

C B. Set parameter select switches as follows:

C (1) Loop position 229

C (2) DFDR position 041

C C. Using ILS tester as directed in 34-33-00 center vertical
C diviation pointer in the No. 1 HSI. Check that 563 tester
C reads 500 ± 20 counts.

C D. Using tester drive pointer to show a one dot deviation fly
C right. Check that 563 tester reads 875 ± 40 counts.

C E. Using tester drive pointer to show a one dot deviation fly
C left. Check that 563 tester reads 125 ± 40 counts.

C C C **CAUTION:** ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED) WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C F. Perform check at DFDR in AEEA if first check was at LOOP C RECORDER in FESC.

C G. Remove tester.

C 29. Microphone Operation (See 31-32-10 Schem 4)

C A. Assure the following circuit breakers are closed:

C CB1

C VHF NO. 1 A11

C VHF NO. 3 C23

C CB2

C VHF NO. 2 L4

C CB3

C AIDS/FLT RCDR DC H10

C AIDS/FLT RCDR Aϕ H11

C AIDS/FLT RCDR Bϕ H12

C AIDS/FLT RCDR Cϕ H13

C NOTE: On planes 31025, 31026, 31028 thru 31031 close the
C following additional circuit breakers.

C CB1

C HF No. 1 AC C3

C HF No. 1 DC C1

C HF No. 2 AC C21

C HF No. 2 DC C19

C B. Set parameter select switches as follows:

C (1) Loop position 304

C (2) DFDR position 057

C C. Check that 563 tester reads as follows:

C (1) With 563 tester in the loop position the tester's
C display should read 37X

C (2) With 563 tester in the DFDR position the tester's
C display should read 77X

C NOTE: (1) Ignore digits represented by an X

C (2) Set paragraph 2.D. for decoding discrete
C words

C D. Set the VHF control panels for VHF 1, 2 and 3 to the test
C frequency for the station conducting the test.

C E. Select VHF No. 1 on Capt's Audio Control panel and depress
C PTT switch on the control wheel. Check that 563 tester
C reads as follows when PTT switch is depressed:

C (1) Loop position 17X

C (2) DFDR position 37X

C F. Select VHF No. 2 on F/O's Audio Control panel and key the
C hand mic. Check that 563 tester reads as follows when mic
C is keyed:

C (1) Loop position 27X

C (2) DFDR position 57X

C G. Select VHF No. 3 on F/E's Audio Control panel and depress
C PTT switch on the MIC Select panel. Check that 563 tester
C reads as follows when PTT switch is depressed:

C (1) Loop position 33X

C (2) DFDR position 67X

C H. Select HF No. 1 on Capt's Audio Control panel and depress
C PTT switch on the control wheel. Check that 563 tester
C reads as follows when switch is depressed:

C (1) Loop position 35X

C (2) DFDR position 73X

C I. Select HF No. 2 on F/O's Audio Control panel and key the
C hand mic. Check that 563 tester reads as follows when mic
C is keyed.

C (1) Loop position 36X

C (2) DFDR position 75X

C J. Microphone discrete word decoding:

DFDR 057			Loop 304		
(1)	VHF No. 1	Mic Keyed 0	(1)	Not used	Mic Keyed 0
(2)	VHF No. 2	Mic Keyed 0	(2)	VHF No. 1	Mic Keyed 0
(3)	VHF No. 3	Mic Keyed 0	(3)	VHF No. 2	Mic Keyed 0
(4)	HF No. 1	Mic Keyed 0	(4)	VHF No. 3	Mic Keyed 0
(5)	HF No. 2	Mic Keyed 0	(5)	HF No. 1	Mic Keyed 0
(6)	--------		(6)	HF No. 2	Mic Keyed 0
(7)	--------		(7)	--------	
(8)	--------		(8)	--------	
(9)	--------		(9)	--------	

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED) WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

- C • AIDS/DFDR DC (H10),
- C • AIDS/DFDR Aϕ (H11),
- C • AIDS/DFDR Bϕ (H12),
- C • AIDS/DFDR Cϕ (H13).

C K. Perform check at DFDR in AEEA if first check was at LOOP RECORDER in FESC.

C L. Remove 563 tester.

C 30. Thrust Reverser Inputs (See 31-32-10 Schem 22)

C A. Assure the following circuit breakers are closed:

C		CB3
C	AIDS/FLT RCDR DC	H10
C	AIDS/FLT RCDR Aφ	H11
C	AIDS/FLT RCDR Bφ	H12
C	AIDS/FLT RCDR Cφ	H13
C	ENG NO. 1 REV IND DC	N4
C	ENG NO. 2 REV IND DC	N10
C	ENG NO. 3 REV IND DC	N16

C B. Set parameter select switches as follows:

C NOTE: As thrust reverser in transit input can not be read
C from the loop position all tests are made with 563
C tester connected at DFDR.

C (1) Thrust reverser in transit 055

C (2) Thrust reverser deployed 056

C C. Check that 563 tester reads as follows:

C (1) Parameter select 055 XXO

C (2) Parameter select 056 XOX

C NOTE: (1) Ignore digits represented by an X

C (2) See paragraph 2.D. for decoding discrete
C words.

C D. Open engine cowling and gain access to thrust reverser
C proximity switches. Place a target over the reverser
C operating sensor A702. With 563 parameter select on 056
C check that display reads as follows:

C (1) Number one engine X4X

C (2) Number two engine X2X

C (3) Number three engine X1X

C E. Remove target from operating sensor and cover reverser
C unlock sensor A701. With 563 parameter select on 055 check
C that display reads as follows:

C (1) Number one engine XX1

C (2) Number two engine XX2

C (3) Number three engine XX4

C F. Thrust Reverser discrete word decoding

C DFDR 055

C (1) --------

C (2) --------

C (3) --------

C (4) --------

C (5) --------

C (6) --------

C (7) No. 3 thrust reverser in transit In transit 1

C (8) No. 2 thrust reverser in transit In transit 1

C (9) No. 1 thrust reverser in transit In transit 1

C DFDR 056

C (1) Not used

C (2) --------

C (3) --------

C (4) No. 1 thrust reverser operating Operating 1

C (5) No. 2 thrust reverser operating Operating 1

C (6) No. 3 thrust reverser operating Operating 1

C (7) --------

C (8) --------

C (9) --------

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO
C AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED)
C WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C G. Perform check at DFDR in AEEA if first check was at LOOP
C RECORDER in FESC.

C H. Remove 563 tester.

C C 31. Landing Gear Down and Lock and Air/Ground (See 31-32-10 Schem 20)

C A. Assure that the following circuit breakers are closed:

C CB1

C PROX SW PWR NO. 1 L10

C LANDING GEAR DOOR POSN IND L13

C PROX SW PWR NO. 4 L11

C CB2

C GEAR TRUCK LEVEL F16

C MLG GND SENSE L8

C CB3

C AIDS/FLT RCDR DC H10

C AIDS/FLT RCDR Aϕ H11

C AIDS/FLT RCDR Bϕ H12

C AIDS/FLT RCDR Cϕ H13

C Galley L.H. C/B Panel

C MLG DOORS PWR GND SVCE

C B. Set parameter select switches as follows:

C (1) Loop position 312

C (2) DFDR position 009

C C. Check that 563 testers display reads X5X

C NOTE: (1) Ignore digits represented by an X

C (2) See paragraph 2.D. for decoding discrete words.

C D. Shade any gear down lock proximity switch sensor.

C E. Check that 563 tester display reads X7X

C F. Remove proximity switch deactivator shade and check that 563 C tester's reading returns to X5X.

C G. In MESC, locate the Proximity Logic Box. Rotate card test
C selector to card 11 (Air/Gnd). Press and hold card test
C switch. Check that 563 tester's reading is X1X while test
C switch is depressed.

C H. Landing gear down lock and Air/Gnd discrete, word decoding.

C DFDR 009 or Loop 312

C (1) --------

C (2) --------

C (3) --------

C (4) Air/Ground input — On ground 1

C (5) Gear down and lock input — Not down and locked 1

C (6) --------

C (7) --------

C (8) --------

C (9) --------

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO
C AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED)
C WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C I. Perform check at DFDR in AEEA if first check was at LOOP
C RECORDER in FESC.

C J. Remove 563 Tester.

C 32. Landing Gear in Transit (See 31-32-10 Schem 20)

C A. Assure that the following circuit breakers are closed:

C CB1

C PROX SW PWR NO. 1 L10

C LANDING GEAR DOOR POSN IND L13

C PROX SW PWR NO. 4 L11

C CB3

C AIDS/FLT RCDR DC H10

C AIDS/FLT RCDR Aϕ H11

C AIDS/FLT RCDR Bϕ H12

C AIDS/FLT RCDR Cϕ H13

C Galley L.H. C/B Panel

C MLG DOORS PWR GND SVCE

C B. Set parameter select switches as follows:

C NOTE: Landing gear intransit input is not available from
C loop position, only DFDR position.

C (1) DFDR position 058

C C. Check that 563 testers display reads 000

C D. Open all landing gear doors or shade all gear door proximity
C switches.

C E. Check that 563 tester display reads 007

C F. Landing gear in transit discrete word decoding.

C DFDR 058

C (1) thru (6) not used - should always be zero

C (7) Right main in transit In transit 1

C (8) Left main in transit In transit 1

C (9) Nose in transit In transit 1

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED) WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C G. Perform check at DFDR in AEEA if first check was at LOOP RECORDER in FESC.

C H. Remove 563 tester.

C 33. Autopilot/Flight Director Inputs

C A. Assure that the following circuit breakers are closed.

C CB1

C AFCS MODE IND B1

C AFCS MODE IND B19

C CB2

C AFCS WARNING F/O K19

C CB3

C AIDS/FLT RCDR DC H10

C AIDS/FLT RCDR Aϕ H11

C AIDS/FLT RCDR Bϕ H12

C AIDS/FLT RCDR Cϕ H13

C B. Altitude Hold - Altitude Select Arm

C NOTE: On all 563 tester readouts given ignore all digits
C represented by an X.

C (1) Set parameter select switches as follows:

C (a) Loop position 312

C (b) DFDR position 009

C (2) Check that 563 tester reads X56

CR (3) On the CAPT's and F/O's AFCS Mode Annunciator
CR Indicators, press and hold test switch No. 2. Check
C that ALTITUDE and ALTITUDE ARM annunciator shows.

C (4) Check that 563 tester reads X42. Release No. 2 test
C switch and reading should return to X56.

C C. AFCS engage

C (1) Set the parameter select switch as follows:

C (a) Loop position 180

C (b) DFDR position 038

C (2) Prepare AFCS system for test in accordance with
C Maintenance Manual 22-00-00.

C NOTE: On all 563 tester readouts given ignore all
C digits represented by an X.

C (3) With both AFCS A and B disengaged, check that 563
C tester's parameter display reads as follows:

C (a) Loop position XX0

C (b) DFDR position 0XX

C (4) Engage AFCS A in CWS Mode. Check that 563 tester reads
C as follows:

C (a) Loop position XX4

C (b) DFDR position 4XX

C (5) Disengage AFCS A.

C (6) Engage AFCS B in CWS Mode. Check that 563 tester reads
C as follows:

C (a) Loop position XX1

C (b) DFDR position 1XX

C (7) Disengage AFCS B.

C (8) Engage AFCS B in CMD Mode. Check that 563 tester reads
C as follows:

C (a) Loop position XX2

C (b) DFDR position 2XX

C (9) Disengage AFCS B.

C (10) When using loop position set parameter select switches
C to 266.

C (11) Check that D hydraulic system is not pressurized and
C low pressure warning lt. is illuminated.

C (12) Check that 563 tester reads X3X in both loop and DFDR
C position.

C (13) Engage Flight Director No. 1. Check that 563 tester
C reads X1X in both loop and DFDR position. Disengage
C No. 1 Flight Director.

C (14) Engage Flight Director No. 2. Check that 563 tester reads X2X in both loop and DFDR position. Disengage No. 2 Flight Director.

C (15) Reset 563 tester parameter select switches as follows:

C (a) Loop position 288

C (b) DFDR position 044

C (16) Check that flaps are full up. The 563 tester should read as follows:

C (a) Loop position XX6

C (b) DFDR position 3XX

C (17) Engage AFCS A in CMD Mode. Check that 563 tester reads as follows:

C (a) Loop position XX7

C (b) DFDR position 7XX

C (18) Disengage AFCS A.

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED) WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR C?ϕ (H13).

C D. Perform check at DFDR in AEEA if first check was at LOOP RECORDER in FESC.

C E. Remove 563 tester.

C 34. AFCS Mode Selections

C A. Assure the following circuit breakers are closed:

CB2		CB3		
AFCS WARNING F/O	K19	AIDS/FLT RCDR	DC	H10
		AIDS/FLT RCDR	Aϕ	H11
		AIDS/FLT RCDR	Bϕ	H12
		AIDS/FLT RCDR	Cϕ	H13

C B. Set 563 testers parameter select switches as follows:

C (1) Loop position 309

C (2) DFDR position 055

C C. Check that 563 tester display reads as follows:

C (1) Loop position 37X

C (2) DFDR position

C (a) APU operating 77X

C (b) APU not operating 37X

C D. Press the No. 1 test switch on the Capt's AFCS Mode Annunciator panel. Check that 563 tester reads as follows:

C (1) Loop position 04X

C (2) DFDR position

C (a) APU operating 44X

C (b) APU not operating 04X

C E. Press the No. 2 test switch on the F/O's AFCS Mode Annunciator panel. Check that 563 tester reads as follows:

C (1) Loop position 33X

C (2) DFDR position

C (a) APU operating 73X

C (b) APU not operating 33X

C F. AFCS Mode selection discrete word decoding

C DFDR 055

C (1) APU On 1

C (2) Vertical Speed Engaged 0

C (3) IAS Hold Engaged 0

C (4) Mach Hold Engaged 0

C (5) Heading Engaged 0

C (6) Turbulence Engaged 0

C (7) X

C 8) X

C (9) X

C Loop 309

C (1) Not used

C (2) Vertical Speed Engaged 0

C (3) IAS Hold Engaged 0

C (4) Mach Hold Engaged 0

C (5) Heading Engaged 0

C (6) Turbulence Engaged 0

C (7) X

C (8) X

C (9) X

C G. Set 563 tester parameter select switches as follows:

C (1) Loop position 306

C (2) DFDR position 044

C H. Turn on the No. 1 Flight Director and check that 563 tester
C reads 376 on both the DFDR and loop positions.

C I. Engage F/D in Autoland Mode. The 563 tester should read
C 176.

C J. Engage F/D in Approach Mode. The 563 tester should read
C 276.

C K. Engage F/D in LOC Mode. The 563 tester should read 336.

C L. Engage F/D in NAV Mode. The 563 tester should read 356.

C M. Return the F/D to original configuration.

C CAUTION: ASSURE THAT THE FOLLOWING CIRCUIT BREAKERS ON FE/SO
C AFT CIRCUIT BREAKER PANEL, CB3, ARE OPEN (DEENERGIZED)
C WHEN CONNECTING OR DISCONNECTING THE 563 TESTER:

C • AIDS/DFDR DC (H10),

C • AIDS/DFDR Aϕ (H11),

C • AIDS/DFDR Bϕ (H12),

C • AIDS/DFDR Cϕ (H13).

C N. Perform check at DFDR in AEEA if first check was at LOOP
C RECORDER in FESC.

C O. Remove 563 tester.

C 35. Time

C A. Assure the following circuit breakers are closed:

	CB3		
C	AIDS/FLT RCDR	DC	H10
C	AIDS/FLT RCDR	Aϕ	H11
C	AIDS/FLT RCDR	Bϕ	H12
C	AIDS/FLT RCDR	Cϕ	H13

C B. Set the parameter select switches on the 563 portable tester C to 005, with tester connected at DFDR position.

C C. Check that the hours displayed on the AIDS Central C Electronics Unit GMT time (two digits on the left) are also C present in the parameter display of the 563 portable tester C (two digits to the right).

C D. Set the parameter select switches on the 563 portable tester C to 006.

C E. Check that the minutes displayed on the AIDS Central C Electronics Unit GMT time (two digits on the right) are also C present in the parameter display of the 563 portable tester C (two digits to the left).

C F. Set the parameter select switches on the 563 portable tester C to 007.

C G. Check that the parameter display on the 563 portable tester C increments at one second rate (digit to the left).

C H. Open AIDS Circuit Breaker closed in Step 35A.

C I. Move 563 Tester from DFDR in AEEA to LOOP RECORDER in FESC.

C J. Close AIDS Circuit Breaker opened in Step 35H.

C K. Repeat Step 35B thru 35G.

C L. Open AIDS Circuit Breaker closed in Step 35J.

C M. Remove 563 tester.

C 36. AIDS Data Entry Panel Information

C A. Assure the following circuit breakers are closed:

C CB3

C AIDS/FLT RCDR DC H10

C AIDS/FLT RCDR Aφ H11

C AIDS/FLT RCDR Bφ H12

C AIDS/FLT RCDR Cφ H13

C B. At the Flight Engineer's station, insert the following
C information in the AIDS Data Entry Panel:

C Flight No. 1 2 3 4 5

C Flight Leg 6

C Month 1 2

C Day 3 4

C C. Set the parameter select switches on the 563 portable tester
C to 002, with tester connected at DFDR position.

C D. Check that the parameter display reads 123.

C E. Set the parameter select switches to 003.

C F. Check that the parameter display reads 456.

C G. Set the parameter select switches to 004.

C H. Check that the parameter display reads 123.

C I. Set the parameter select switches to 005.

C J. Check that the parameter display reads 4XX.

C K. Set the parameter select switches to 007.

C L. Check that the two digits to the right of the parameter
C display reads the same as the last two digits of the TWA
C aircraft number (nose number).

C M. Set the parameter select switches to 009.

C N. Check that the single digit to the left in the parameter
C display reads 3XX.

C NOTE: Digits represented by an "X" should be ignored.

C O. Open AIDS Circuit Breaker closed in Step 36A.

C P. Move 563 tester from DFDR in AEEA to LOOP RECORDER in FESC.

C Q. Close AIDS Circuit Breaker opened in Step 36O.

C R. Repeat Steps 36B thru 36N.

C S. Open AIDS Circuit Breaker closed in Step 36Q.

T. Remove 563 Tester.

TRIAXIAL ACCELEROMETER - REMOVAL AND INSTALLATION

1. General

The triaxial accelerometer is located in the hydraulic service center compartment (HSCC), zone 147, on the transverse floor beam, FS1243. Access to the HSSC is through access door 147AB or 147BB.

2. Equipment and Materials

Protective caps

3. Referenced Procedures

06-40-00	Exterior Access Doors and Panels
20-24-00	Standard Practices - Electrical Power

4. Removal/Installation

A. Removal

(1) On Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215, open and tag circuit breakers AIDS/FLT RCDR DC (H10), Aϕ (H11), Bϕ (H12), and Cϕ (H13).

(2) Gain access to hydraulic service center compartment (HSCC) through access door 147AB or 147BB (Ref. MM6-40-00). Locate accelerometer and accelerometer
R support bracket on cabin transverse floor beam FS 1243
R (Ref. Fig. 401).

(3) Disconnect wiring harness plug from its mating receptacle on accelerometer housing. Install protective caps on wiring harness plug and receptacle.

(4) Disengage accelerometer from support bracket by removing attach screws.

B. Installation

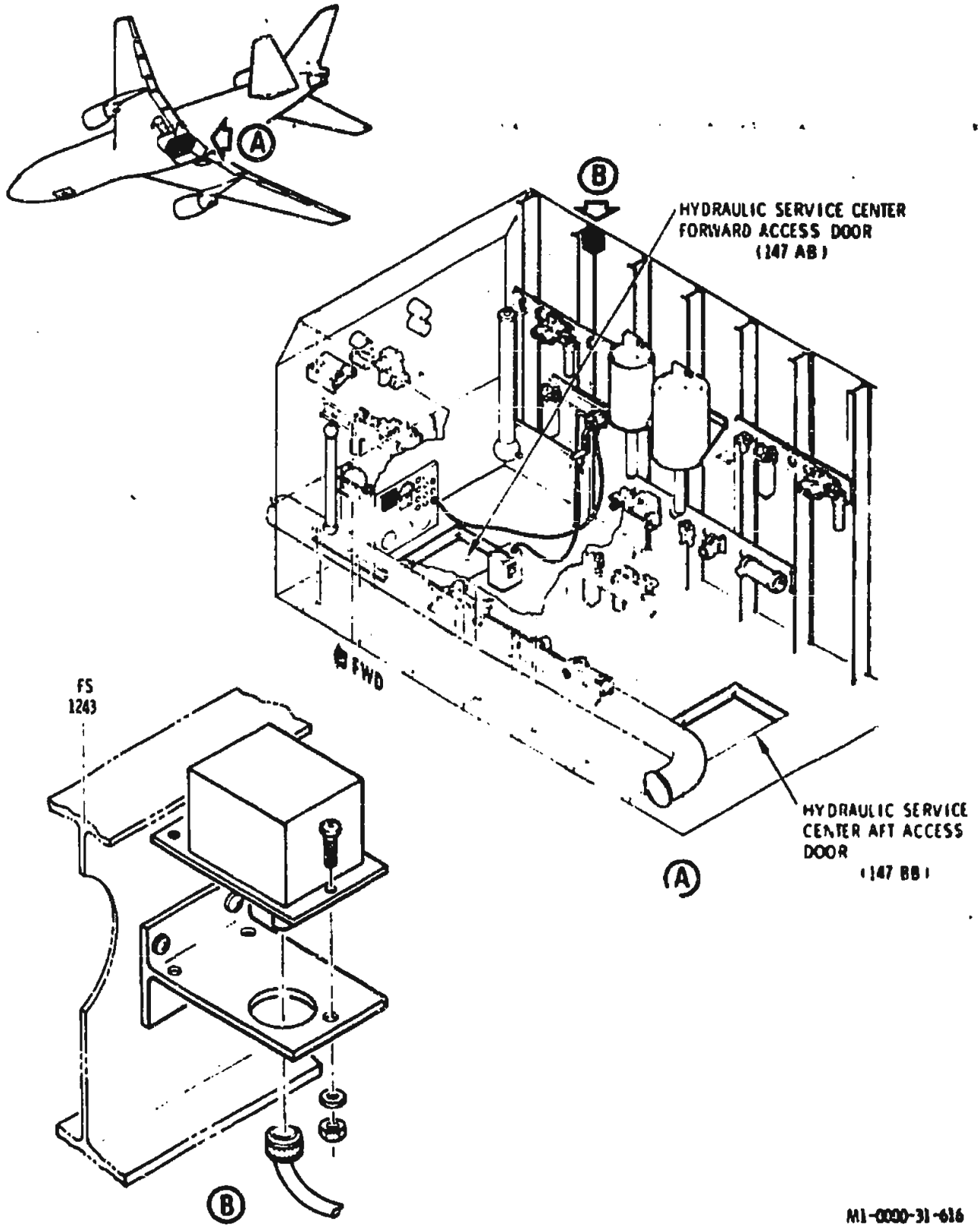
(1) Verify that circuit breakers opened in Step 4A(1) are open and tagged.

(2) Place accelerometer in installation position and secure accelerometer to support bracket with attach screws.

(3) Remove protective caps from wiring harness plug and receptacle.

(4) Connect wiring harness plug to receptacle.

(5) Remove tags and close circuit breakers opened in Step 4A(1).



R Triaxial Accelerometer - Removal and Installation
R Figure 401

R EFFECTIVITY: ALL
R
001B

C UNDERWATER LOCATING DEVICE - REMOVAL AND INSTALLATION

C 1. Removal/Installation Underwater Locator Device

C A. Remove Underwater Locator

C (1) Loosen four (4) nuts on Retaining Straps equally to
C permit sliding Underwater locator from straps and over
C the retaining blocks. Do not remove straps and blocks
C from recorder.

C B. Install Underwater Locator

C (1) Slide locator device into the retaining straps and over
C the retaining blocks. Position the locator in the
C blocks with the date sticker visable but in a position
C it will not be torn off.

C (2) Tighten the nuts on the retaining straps evenly to a
C value of 50-60 inch-pounds of torque.

C (3) Assure water switch on the end of the locator is free
C of dirt and contamination.

CR NOTE: ULDtest not required if just transferring ULD
CR from old recorder to replacement recorder.

C C. Test Underwater Locator (ULD)

C (1) Test Equipment Required

C (a) Dukane Model 42A12 Ultrasonic test receiver.

C (2) Functional Test

C (a) On test receiver set input selector to INT.
C position and activate by turning gain control full
C up.

C (b) Temporarily short water seitch, center contact on
C one end of ULD to the case with a jumper wire.

C (c) With tuning control set between 35 and 40 kHz an
C audible pulse should be heard at approximately one
C second intervals. If pulse rate deviates greatly
C from one per second or signal is relatively weak,
C ULD should be replaced.

C NOTE: Test receiver may be checked by jingling
C keys or coins in front of microphone. This
C should produce a clanging from loudspeaker.

ENGINE BLEED AIR DUCT TEMPERATURE SENSOR REMOVAL AND INSTALLATION

1. General

There is a temperature sensor at each engine. The removal/installation procedure is the same for each sensor.

2. Equipment and Materials

Protective caps

3. Referenced Procedure

31-31-00 Digital Flight Data Recorder - Adjustment and Test

4. Removal/Installation

R WARNING: TAG FE/SO BLEED AIR AND APU CONTROL PANELS, AND THREE
R HIGH PRESSURE GROUND AIR CONNECTIONS TO PREVENT
R PRESSURIZING ENGINE BLEED AIR DUCT UNTIL PROCEDURE HAS
R BEEN COMPLETED.

R RECENT OPERATION OF SYSTEM WILL CAUSE HIGH TEMPERATURE AIR IN DUCT.

A. Removal

(1) On FE/SO aft circuit breaker panel CB3, open and tag circuit breaker FLT - RECORDER - AC (G5).

(2) Gain access to sensor through panel 511KB (for left wing duct sensor 2163-RT8), 611KB (for right wing duct sensor 2163-RT9), or 313FR (for aft body duct sensor 2163-RT10).

NOTE: The aft body duct sensor is located at approximately FS 1998, WL 334, BL15L.

(3) Disconnect electrical connector and install protective caps.

(4) Remove temperature sensor.

B. Installation

R (1) Verify that circuit breaker opened in Step 4A(1) is open and tagged.

(2) Install temperature sensor.

(3) Remove protective caps for electrical connector and connect sensor.

(4) Replace access panel.

R R (5) Remove tags and close circuit breaker opened in Step 4A(1).

(6) Verify system operation (Ref. 31-31-00, Signal Codes 101-4, 101-5, or 101-6).

AIRCRAFT INTEGRATED DATA SYSTEM - DESCRIPTION AND OPERATION

1. General

The aircraft integrated data system (AIDS) (Ref. Fig. 1) is a computer-controlled airborne data system that continuously samples and records data from selected aircraft systems on a time-sharing basis (Ref. Fig. 2). The system consists of:

Data acquisition unit (DAU) No. 1 and 3, a continuous loop recorder (CLR), a central electronics unit (CEU), and an incremental recorder (IR), all installed in the forward electronic service center (FESC), zone 113

DAU No. 2, installed in the mid electrical service center (MESC), zone 137

AIDS control unit (ACU), installed in the Flight Engineer/Second Officers (FE/SO) lower panel, zone 215

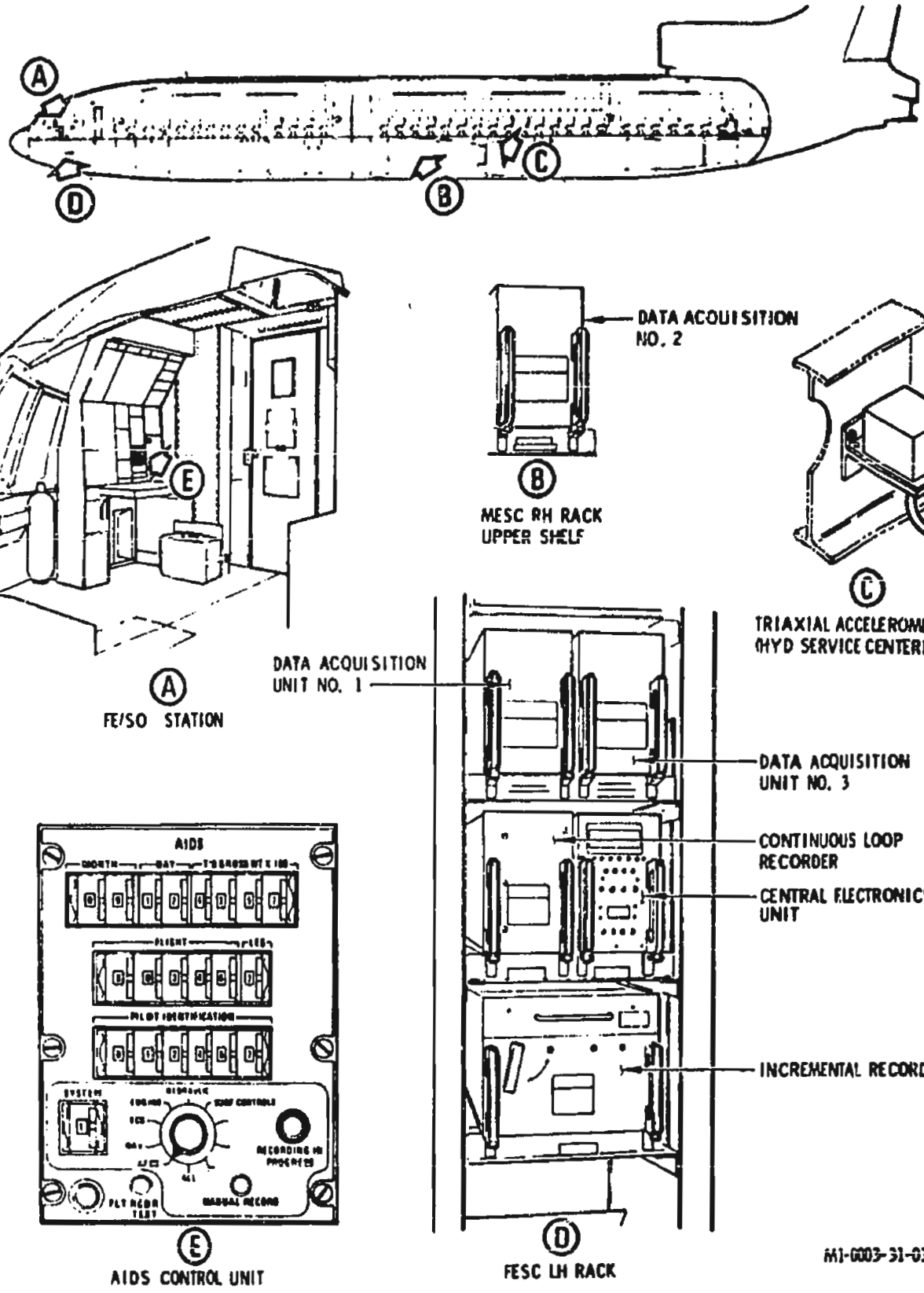
R Triaxial accelerometer, installed in the hydraulic service center, zone 147

R Thermocouple reference junctions (TRJ), installed in the FESC, zone 112; the MESC, zone 137; and the aft electronics equipment area, zone 164.

2. Operation

The AIDS system (Ref. Fig. 2 thru 4) is energized by 28V dc and 115V ac, 400-Hz, three-phase power through the AIDS/FLT RCDR - DC circuit breaker and AIDS/FLT RCDR - phase A, phase B, and phase C circuit breakers on the FE/SO aft circuit breaker panel, CB3, zone 215. Panel and indicating light circuits are
R energized by 5Vac supplied through the 5VAC FLT ENGR PANEL LIGHTS - LOWER - NO. 3 circuit breaker on the same panel. The AIDS power is applied through a 45 (±4.5)-second time-delay (delayed opening) relay in the FESC, zone 112. The time-delay relay allows an automatic undelayed turn-on of the AIDS when the aircraft engines are started, and an automatic shutdown of the AIDS 45 (±4.5) seconds after the aircraft engines are shut down. The delay in AIDS shutdown permits a 30-second scan of engine shutdown parameters (used for trend data analysis) to be completed.

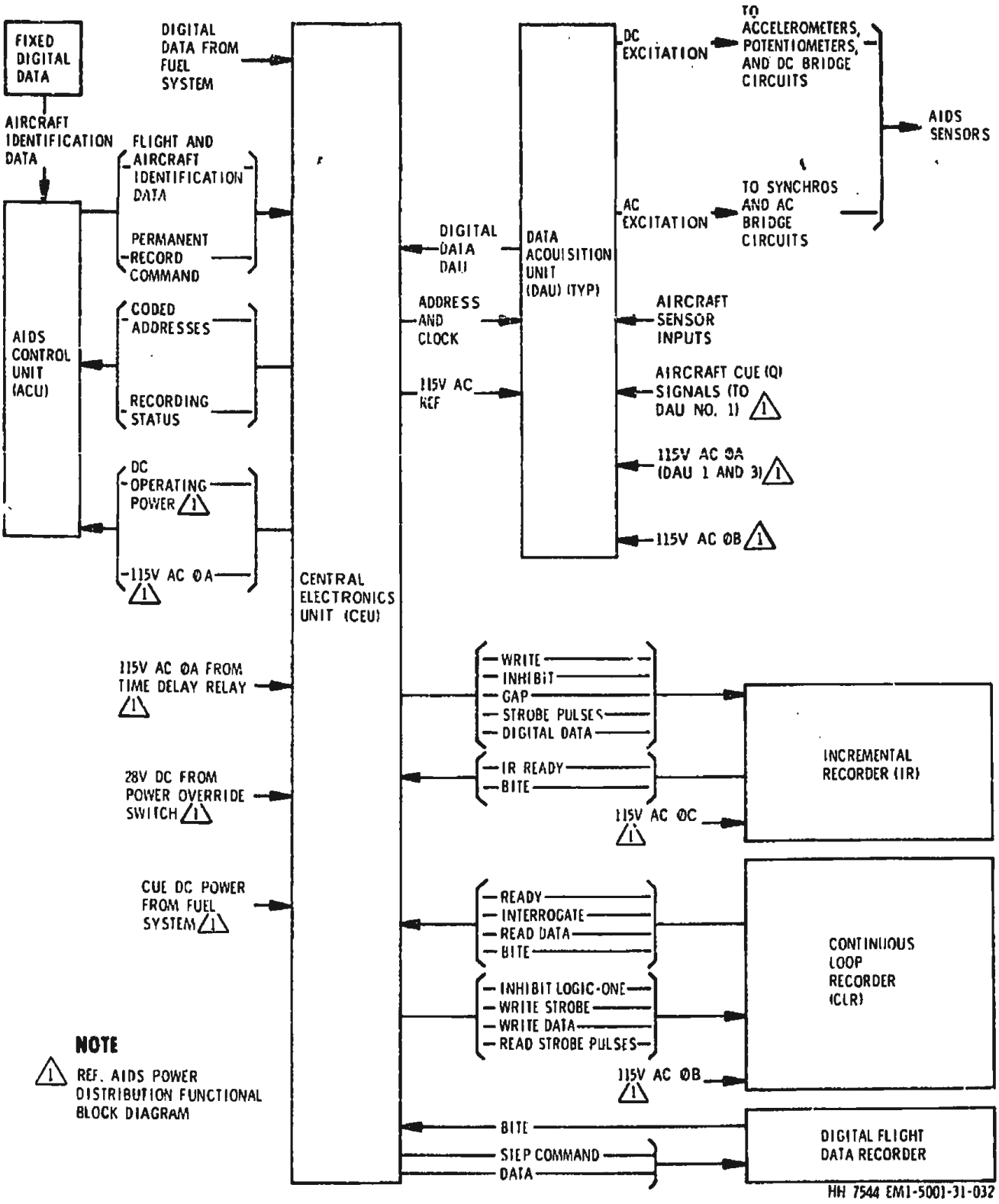
A power relay logic circuit in the CEU senses the positions of three fuel shutoff valve relays; each of these relays is energized when its associated fuel shutoff switch is closed. The CEU power relay logic circuit energizes the time-delay relay



R
R

AIDS Component Locations
Figure 1

EFFECTIVITY: ALL



AIDS Functional Block Diagram
Figure 2

when any one of the fuel shutoff switches is closed; the logic circuit deenergizes the relay when all three fuel shutoff switches are open. A POWER OVERRIDE switch, located above the CEU, zone 113, is also sensed by the CEU power relay logic circuit; operating the switch allows the AIDS to be energized for self-testing without the requirement for starting the engines.

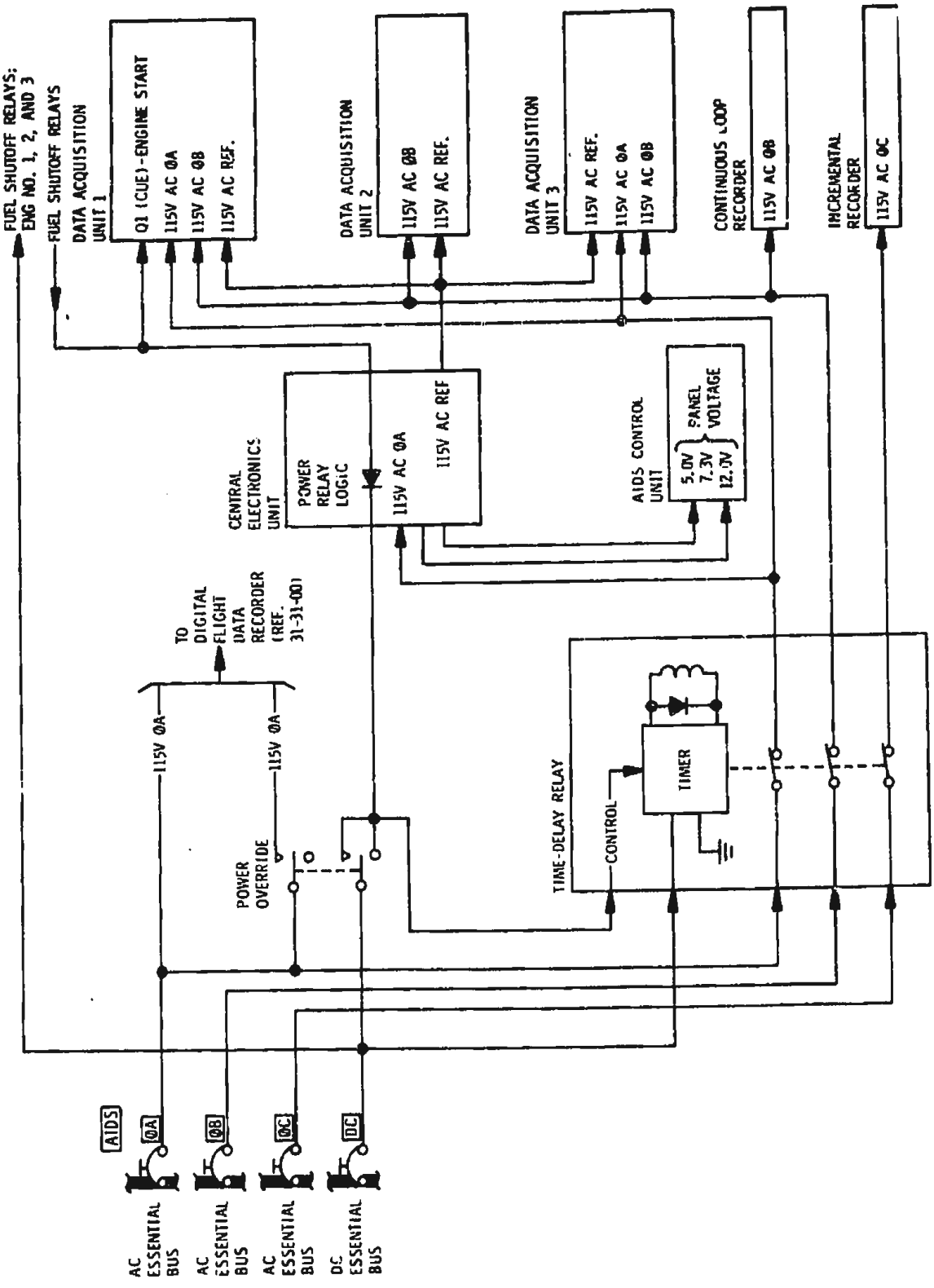
The CLR records data from all monitored systems during the most recent five-minute period. The IR permanently records data during selected time periods. The CLR operates continuously as long as AIDS is operational and serves as a five-minute time-delay of information to the IR. The IR operates only when
R instructed by the CEU. In addition to data recorded on the CLR and IR, selected digital data is received, processed, and directed by the CEU to the digital flight data recorder, (DFDR Ref. 31-31-00). The DFDR records data selected during the most
R recent 25-hour period of AIDS operation. If a problem develops in any system being monitored, a permanent record of associated parameters may be retained for subsequent fault isolation. This is accomplished by dialing in the system (and subsystem, if
R applicable) to be recorded, through the thumbwheel and selector switches, and pressing the MANUAL RECORD switch on the AIDS control unit (ACU). At this time, the desired parameters selected from the information in the CLR are transferred through the CEU to the IR. This allows data, sampled approximately five-minutes before the indication of trouble, to be retained for future fault isolation.

In addition to recording trouble data (maintenance data set), the AIDS provides the necessary mechanization and control to enable information representing a trend (trend data set) to be recorded directly on the IR. The programmed length of time during which a trend data set is acquired is adjustable. The AIDS is programmed to implement the required data processing and recorder control circuits necessary to automatically and permanently record data and to sense [by cue (Q) signals] the occurrence of the following selected events required for analyzing trends:

Q-1 Engine Start: Initiated by setting one of three FUEL AND IGNITION switches on the pilots center console to ON, resulting in an AIDS 30-second scan after a one-minute time delay (Ref. 28-00-00).

Q-2 Takeoff: Initiated by activation of No. 1 engine power control lever direct lift control switch at 70-percent power level, resulting in an AIDS undelayed two-minute scan (Ref. 27-00-00).

HH 7516
EM1-5001-31-00B



AIDS Power Distribution Functional Block Diagram
Figure 3

Q-3 Climb: Initiated by an altitude parameter at 20,000 feet, resulting in an AIDS undelayed 15-second scan (Ref. 34-00-00).

Q-4 Cruise: Initiated at the first press of the ALT switchlight (to initiate the autopilot altitude-hold mode) on the heading/pitch mode command panel on the pilots glareshield panel, or at reaching a selected altitude during the autopilot altitude-select mode, resulting in an AIDS one-minute scan after a 15-minute time delay (Ref. 22-00-00).

Q-5 Descent: Initiated by a second press of the ALT switchlight (disengaging the autopilot altitude-hold mode) and decreasing the aircraft altitude by 300 feet, resulting in an AIDS undelayed 15-second scan (Ref. 22-00-00).

Q-6 Approach: Initiated when all landing gear are down and locked, resulting in an AIDS undelayed scan until one minute after the air/ground safety relay is energized (Ref. 32-00-00).

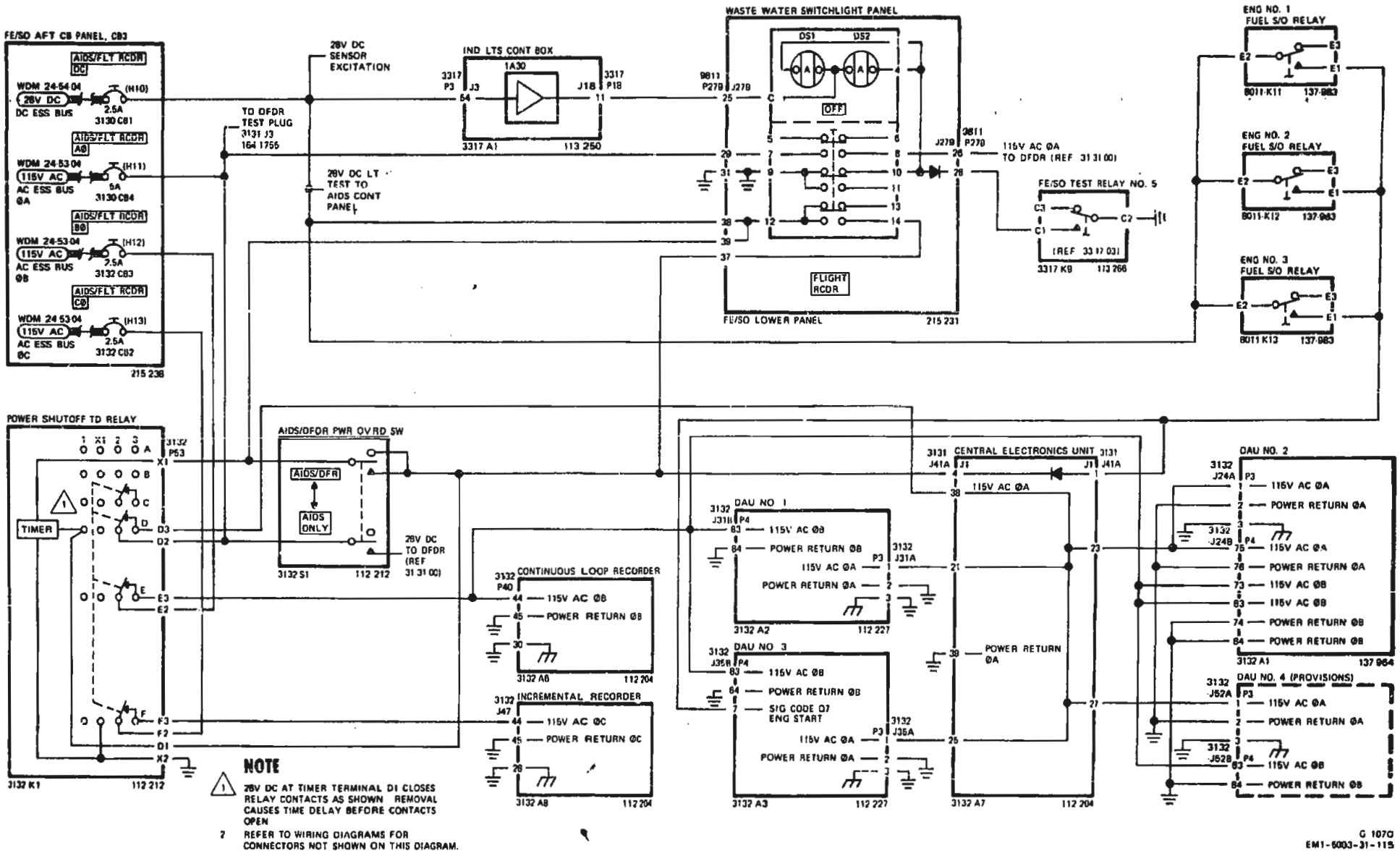
Q-7 Engine Shutdown: Initiated by setting the FUEL AND IGNITION switches to off (open), resulting in an AIDS undelayed 30-second scan.

It is possible that permanent records of two different data sets may be requested at the same time. In this event, the following priority is established by the AIDS control logic:

R If a maintenance data set is requested by the FE/SO while a trend data set is being recorded, the trend data set is completed and the maintenance data set is then recorded. The CLR is not stopped in this or any other event.

If a trend data set is requested by the CEU program while a maintenance data set is being recorded, the maintenance set is completed and a full trend data set of current (undelayed) data is then recorded.

If a second maintenance data set is requested while a first maintenance data set is being recorded, the second request takes priority. The second request causes the first maintenance data set to end and a new data set for the system currently selected to start. If a trend data set request is waiting at this time, it continues to wait until the second maintenance data set is completed. Similarly, a third data set, requested while the second data set is in progress, causes the second data set to be terminated and the new data set for the system currently selected to start.



NOTE

1. 28V DC AT TIMER TERMINAL D1 CLOSES RELAY CONTACTS AS SHOWN. REMOVAL CAUSES TIME DELAY BEFORE CONTACTS OPEN.
2. REFER TO WIRING DIAGRAMS FOR CONNECTORS NOT SHOWN ON THIS DIAGRAM.

G 1070
EM1-6003-31-115

R AIDS Power Control Schematic
R Figure 4

EFFECTIVITY: ALL

050B

If a trend data set is requested while a trend data set is in process, the start of the second data set is delayed until the current data set is completed. At the completion of the first data set, a full trend data set of the second request is recorded.

In addition to providing the means of defining the aircraft parameters to be recorded, the ACU provides thumbwheel switches for entering flight-identification data into the CEU for processing. The data comprises the date, takeoff gross weight, flight number, flight leg number, and the Captain's identification number. The data is read by the CEU and transferred to the CLR before each data scan; the data is transferred to the IR during the recording of trend data.

Aircraft signals selected for sampling are routed to the three DAUs. Digital samples from the fuel system are routed directly to the CEU for processing. Sensor outputs are routed to the DAU closest to the sensor. The AIDS input parameter signals are listed in Tables 1 through 17. The applied signals are preconditioned, multiplexed, converted into a standard digital format, and transmitted to the CEU for processing. During multiplexing, CEU-controlled switches allow only one selected parameter at a time to be processed by the AIDS.

The CEU processes the digital data from the ACU and the three DAUs. The CEU provides all the scaling and formating necessary to supply data in a suitable form for the using recorders. A Greenwich Mean Time (GMT) resettable clock circuit in the CEU provides real-time clock signals for CEU processing so that each set of parameters is associated with the time it is acquired.

The thermocouple reference junctions (TRJ) are cold-junction compensators. They are located in zones which are remote from components being monitored and which produce high temperatures. The TRJ inputs are thermocouples which are inserted into high-temperature areas (hot junctions). Each TRJ (cold junction) electrically compensates for variations in ambient temperature to provide apparent temperatures for sampling. Therefore, each apparent temperature (TRJ output) is dependent on the relative temperatures of the hot junction and the compensated cold junction.

R Aids Parameters
R Table 1

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
	21-00-00 AIR CONDITIONING SYSTEM			
	CABIN AIR FLOW (0 TO 2500 CU FT/MIN.) 0 TO 5.0 VDC			
18-1	PACK NO. 1	SIG COND/AMP	21-63-09	1
18-2	PACK NO. 2	SIG COND/AMP	21-63-09	1
18-3	PACK NO. 3	SIG COND/AMP	21-63-09	1
	WATER SEPARATOR PRESSURE (0 TO 3.0 PSIG) 0 TO 30 MVDC. EXCITATION 5 VDC FROM DAU NO. 3			
53-1	PACK NO. 1	PRESS XDCR		3
53-2	PACK NO. 2	PRESS XDCR		3
53-3	PACK NO. 3	PRESS XDCR		3
	MIXING PLENUM PRESSURE (0 TO 15.0 IN. WATER) 0 TO 20 MVDC. EXCITATION 5 VDC FROM DAU NO. 3			
55-1	PLENUM PRESS	PRESS XDCR	21-51-34	3
	AIR CYCLE MACHINE DISCHARGE TEMP (-20 TO +320°C) 0 TO 5.0 VDC			
56-1	PACK NO. 1	SIGNAL COND	21-63-40	3
56-2	PACK NO. 2	SIGNAL COND	21-63-40	3
56-3	PACK NO. 3	SIGNAL COND	21-63-40	3
	CABIN PRESSURIZATION SAFETY VALVE (OPEN: 3 VDC OR LESS; NOT-OPEN: 7 VDC OR GREATER)			
57-7	FWD CABIN	SAFETY VALVE NO. 1	21-32-01	3
57-8	AFT CABIN	SAFETY VALVE NO. 2	21-32-02	3
	TEMPERATURE CONTROL VALVE (CLOSED: 7 VDC OR GREATER; NOT-CLOSED: 3 VDC OR LESS			
57-9	FLIGHT STATION	CONT VALVE NO. 1	21-61-07	3
57-10	FWD CABIN	CONT VALVE NO. 2	21-61-08	3

R Aids Parameters (Cont)
R Table 1

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
57-11	MID CABIN	CONT VALVE NO. 3	21-61-09	3
57-12	AFT CABIN	CONT VALVE NO. 4	21-61-10	3
57-13	GALLEY	CONT VALVE NO. 5	21-61-11	3
HOT AIR MANIFOLD TEMP CONT VALVE (CLOSED: 3 VDC OR LESS; NOT-CLOSED: 7 VDC OR GREATER)				
57-19	PACK NO. 2	TEMP CONT RLY	21-41-17	3
57-20	PACK NO. 3	TEMP CONT RLY	21-41-17	3
57-25	APU	APU ISO VALVE	36-12-02	3
57-26	TRIM S/O	ISO VALVE (2 & 3)	21-41-17	3
ZONE SUPPLY DUCT TEMPERATURES (20 TO 200°F) 0 TO 5.0 VDC				
58-1	FLT STA DUCT	SIGNAL COND	21-63-40	3
58-2	FWD CABIN DUCT	SIGNAL COND	21-63-40	3
58-3	MID CABIN DUCT	SIGNAL COND	21-63-40	3
58-4	AFT CABIN DUCT	SIGNAL COND	21-63-40	3
58-5	GALLEY DUCT	SIGNAL COND	21-63-40	3
59-1	FLT STA ZONE	SIGNAL COND	21-63-40	3
59-2	FWD CABIN ZONE	SIGNAL COND	21-63-40	3
59-3	MID CABIN ZONE	SIGNAL COND	21-63-40	3
59-4	AFT CABIN ZONE	SIGNAL COND	21-63-40	3
59-5	GALLEY ZONE	SIGNAL COND	21-63-40	3
ECS FAN BEARING TEMP (50 TO 230°F) 0.78 TO 9.50 MVDC. 5 VDC TRJ POWER FROM DAU NO. 3				
72-1	FESC	THERMOCOUPLE	21-25-03	3
72-2	MESC	THERMOCOUPLE	21-25-04	3

Aids Parameters (Cont)
Table 1

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
72-3	GALLEY	THERMOCOUPLE	21-25-04	3
72-4	FWD CARGO	THERMOCOUPLE	21-44-04	3
72-5	MID CARGO	THERMOCOUPLE	21-44-05	2
72-6	AFT CARGO	THERMOCOUPLE	21-44-06	2
AIR CYCLE MACHINE TURBINE INLET TEMP (-20 TO +320°C) 0 TO 5.0 VDC. 2 MA EXCITATION FROM ECS SIGNAL CONDITIONER				
103-1	ACM NO. 1	SIGNAL COND	21-63-40	3
103-2	ACM NO. 2	SIGNAL COND	21-63-40	3
103-3	ACM NO. 3	SIGNAL COND	21-63-40	3
CARGO COMPT TEMPERATURE (20 TO 200°F) 0 TO 5.0 VDC. 2 MA EXCITATION FROM ECS SIGNAL CONDITIONER				
R (ON AIRCRAFT 001-031)				
105-1	FWD CARGO	SIGNAL COND	21-63-40	3
R (ON AIRCRAFT 001-031)				
105-2	MID CARGO	SIGNAL COND	21-63-40	3
R (ON AIRCRAFT 001-031)				
105-3	AFT CARGO	SIGNAL COND	21-63-40	3

R Aids Parameters
R Table 2

SIGNAL CODE NO.	AIDS PARAMETERS	SIGNAL SOURCE	ATA NO.	DAU INPUT
	22-00-00 AUTO FLIGHT SYSTEM			
	ANGLE OF ATTACK (+50 TO -10 DEGREES) 0 TO 11.8 VAC SYNCHRO EXCITATION 26 VAC FROM SPEED CONTROL COMPUTER (REF. 22-31-07)			
42-1	LEFT SENSOR	SYNCHRO	22-31-06	1
42-2	RIGHT SENSOR	SYNCHRO	22-31-06	1

R Aids Parameters
R Table 3

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
	23-00-00 COMMUNICATIONS SYSTEM			
	MICROPHONE OPERATION (KEYED: GROUND; NOT-KEYED: OPEN)			
R 160-1	VHF NO. 1	CAPT AUDIO SEL PNL	23-51-04	1
R 160-2	VHF NO. 2	CAPT AUDIO SEL PNL	23-51-04	1
R 160-3	VHF NO. 3	CAPT AUDIO SEL PNL	23-51-04	1
R 160-4	HF NO. 1	CAPT AUDIO SEL PNL	23-51-04	1
R 160-5	HF NO. 2	CAPT AUDIO SEL PNL	23-51-04	1
R 160-6	COMSAT	(PROVISIONS ONLY)		1

R Aids Parameters
R Table 4

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
	27-00-00 FLIGHT CONTROL SYSTEM			
	AILERON POSITION (FULL UP: +20 DEGREES; FULL DOWN: -20 DEGREES) 0 TO 11.8 VAC. SYNCHRO EXCITATION 26 VAC PHASE B			
11-1	LEFT (OUTBD)	SYNCHRO	27-13-01	1
11-2	LEFT (INBD)	SYNCHRO	27-13-01	1
11-3	RIGHT (OUTBD)	SYNCHRO	27-13-01	1
11-4	RIGHT (INBD)	SYNCHRO	27-13-01	1
	SPOILER POSITION (0 TO 60 DEGREES) HIGH NULL AND TRIM AT 0 DEGREES, 0 TO 11.8 VAC. SYNCHRO EXCITATION 26 VAC PHASE B			
11-5	SPOILER (LH NO. 4)	SYNCHRO	27-62-01	1
11-6	SPOILER (LH NO. 5)	SYNCHRO	27-62-01	1
11-7	SPOILER (RH NO. 2)	SYNCHRO	27-62-01	1
11-8	SPOILER (RH NO. 6)	SYNCHRO	27-62-01	1
	STABILIZER POSITION (+14.0 TO -1.0 DEGREES) 0 TO 11.8 VAC. SYNCHRO EXCITATION 26 VAC PHASE B			
46-1	SURF POS	SYNCHRO	27-43-01	1
	WING FLAP POSITION (0 TO 42.0 DEGREES) 0 TO 11.8 VAC. SYNCHRO EXCITATION 26 VAC PHASE A			
47-1	RIGHT (OUTBD)	SYNCHRO	27-52-00	1
47-2	LEFT (OUTBD)	SYNCHRO	27-52-00	1
	CONTROL WHEEL POSITION, 0 TO 5.0 VDC. 5 VDC EXCITATION FROM DAU NO. 1			
51-1	CAPTAIN	5K POT	27-11-34	1

R R R

R Aids Parameters (Cont)
R Table 4

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
PITCH TRIM POSITION (-10 TO 0 DEGREES) 0.5 TO 4.5 VDC. 5 VDC EXCITATION FROM DAU NO. 1				
110-1	RIGHT (MECH)	5K POT	27-41-17	1
110-2	LEFT (ELECT)	5K POT	27-41-16	1
CONTROL COLUMN POSITION, 0 TO 5 VDC. 5 VDC EXCITATION FROM DAU NO. 1				
111-1	CAPTAIN	5K POT	27-41-34	1
111-2	FIRST OFFICER	5K POT	27-41-34	1
RUDDER PEDAL POSITION, 0 TO 5 VDC. 5 VDC EXCITATION FROM DAU NO. 1				
112-1	PEDAL POSITION	5K POT	27-21-22	1

Aids Parameters
Table 5

SIGNAL CODE NO.	AIDS PARAMETERS	SIGNAL SOURCE	ATA NO.	DAU INPUT
	28-00-00 FUEL SYSTEM			
	FUEL QUANTITY, TANK NO. 1 AND NO. 3 (100 TO 54000 LBS) 0.19 to 4.95 VDC. 0.19 VDC equals 100 LBS OF RESIDUAL FUEL			
9-1	TANK NO. 1	SIGNAL COND	28-41-30	3
9-4	TANK NO. 3	SIGNAL COND	28-41-30	3
	FUEL QUANTITY, TANK NO. 2 LEFT AND NO. 2 RIGHT (50 TO 27000 LBS) 0.19 to 4.95 VDC. 0.19 VDC equals 50 LBS OF RESIDUAL FUEL			
9-2	TANK NO. 2 LEFT	SIGNAL COND	28-41-31	3
9-3	TANK NO. 2 RIGHT	SIGNAL COND	28-41-31	3

Aids Parameters
Table 6

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
	29-00-00 HYDRAULIC POWER SYSTEM			
	HYDRAULIC SYSTEM PRESSURE (0 TO 4000 PSI) 15.5 TO 10.5 VAC			
64-1	SYSTEM A	PRESS XMTR	29-31-08	1
64-2	SYSTEM B	PRESS XMTR	29-31-08	1
64-3	SYSTEM C	PRESS XMTR	29-31-08	3
64-4	SYSTEM D	PRESS XMTR	29-31-08	3
	HYDRAULIC PUMP CASE DRAIN FLOW, ENGINE DRIVEN (1.4 TO 7.0 GPM) 3.2 TO 16.0 VAC			
66-1	ENG NO. 1 (A1)	QFM	29-34-01	2
66-2	ENG NO. 2 (B1)	QFM	29-34-01	2
66-3	ENG NO. 2 (C1)	QFM	29-34-01	2
66-4	ENG NO. 3 (D1)	QFM	29-34-01	2
	HYDRAULIC PUMP CASE DRAIN FLOW, AUX PUMPS (1.4 TO 7.0 GPM) 3.2 TO 16.0 VAC			
66-5	ATM PUMP (B2)	QFM	29-31-01	2
66-6	ATM PUMP (C2)	QFM	29-34-01	2
	HYDRAULIC PUMP CASE DRAIN TEMPERATURE (-40 TO +392°F) 79.39 TO 177.95 MVDC. 1 MA EXCITATION FROM DAU NO. 2			
129-1	ENG NO. 1 (A1)	TEMP SENSOR		2
129-2	ENG NO. 2 (B1)	TEMP SENSOR		2
129-3	ENG NO. 2 (C1)	TEMP SENSOR		2
129-4	ENG NO. 3 (D1)	TEMP SENSOR		2
	HYDRAULIC PUMP CASE DRAIN TEMPERATURE (-40 TO +392°F) 79.39 TO 177.95 MVDC. 1 MA EXCITATION FROM DAU NO. 2			
129-5	ATM PUMP (B2)	TEMP SENSOR		2

R Aids Parameters (Cont)
R Table 6

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
129-6	ATM PUMP (C2)	TEMP SENSOR		2
	SERVO VALVE RETURN FLOW, LEFT OUTBOARD AILERON (0.5 TO 2.50 GPM) 2.2 TO 11.0 VAC. QFM EXCITATION 115 VAC PHASE B			
62-1	SYSTEM B	QFM	29-34-03	2
62-2	SYSTEM A	QFM	29-34-03	2
	SERVO VALVE RETURN FLOW, LEFT INBOARD AILERON (0.5 TO 2.50 GPM) 2.2 TO 11.0 VAC QFM EXCITATION 115 VAC PHASE B			
62-3	SYSTEM A	QFM	29-34-03	2
62-4	SYSTEM B	QFM	29-34-03	2
62-5	SYSTEM C	QFM	29-34-03	2
	SERVO VALVE RETURN FLOW, LEFT WING SPOILERS (0.2 TO 1.0 GPM) 2.2 TO 11.0 VAC. QFM EXCITATION 115 VAC PHASE B			
62-6	NO. 1 SYSTEM B	QFM	29-34-04	2
62-7	NO. 2 SYSTEM A	QFM	29-34-04	2
62-8	NO. 3 SYSTEM C	QFM	29-34-04	2
62-9	NO. 4 SYSTEM B	QFM	29-34-04	2
62-10	NO. 5 SYSTEM C	QFM	29-34-04	2
62-11	NO. 6 SYSTEM B	QFM	29-34-04	2
	SERVO VALVE RETURN FLOW, RIGHT OUTBOARD AILERON (0.50 TO 2.50 GPM) 2.2 TO 11.0 VAC. QFM EXCITATION 115 VAC PHASE B			
62-12	SYSTEM B	QFM	29-34-03	2
62-13	SYSTEM D	QFM	29-34-03	2
	SERVO VALVE RETURN FLOW, RIGHT INBOARD AILERON (0.50 TO 2.50 GPM) 2.2 TO 11.0 VAC. QFM EXCITATION 115 VAC PHASE B			
62-14	SYSTEM B	QFM	29-34-03	2

Aids Parameters (Cont)
Table 6

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
62-15	SYSTEM C	QFM	29-34-03	2
62-16	SYSTEM D	QFM	29-34-03	2
SERVO VALVE RETURN FLOW, RIGHT WING SPOILERS (0.2 TO 1.0 GPM) 2.2 TO 11.0 VAC. QFM EXCITATION 115 VAC PHASE B				
62-17	NO. 1 SYSTEM B	QFM	29-34-04	2
62-18	NO. 2 SYSTEM D	QFM	29-34-04	2
62-19	NO. 3 SYSTEM C	QFM	29-34-04	2
62-20	NO. 4 SYSTEM B	QFM	29-34-04	2
62-21	NO. 5 SYSTEM C	QFM	29-34-04	2
62-22	NO. 6 SYSTEM B	QFM	29-34-04	2
SERVO VALVE RETURN FLOW, STABILIZER (0.7 TO 3.50 GPM) 2.2 TO 11.0 VAC. QFM EXCITATION 115 VAC PHASE B				
62-23	SYSTEM A	QFM	29-34-02	2
62-24	SYSTEM B	QFM	29-34-02	2
62-25	SYSTEM C	QFM	29-34-02	2
62-26	SYSTEM D	QFM	29-34-02	2
SERVO VALVE RETURN FLOW, RUDDER (0.50 TO 2.50 GPM) 2.2 TO 11.0. VAC. QFM EXCIATION 115 VAC PHASE B				
62-27	SYSTEM B	QFM	29-34-03	2
62-28	SYSTEM C	QFM	29-34-03	2
62-29	SYSTEM A	QFM	29-34-03	2
SERVO VALVE RETURN FLOW, DIRECT LIFT CONTROL (0.2 TO 1.0 GPM) 2.2 TO 11.0 VAC. QFM EXCITATION 115 VAC PHASE B				
62-30	SYSTEM A	QFM	29-34-04	2
62-31	SYSTEM B	QFM	29-34-04	2

Aids Parameters (Cont)
Table 6

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
SERVO VALVE RETURN FLOW, NOSE GEAR STEERING (0.1 TO 0.5 GPM) 2.2 TO 11.0 VAC. QFM EXCITATION 115 VAC PHASE B				
62-32	SYSTEM C	QFM	29-34-05	3

R Aids Parameters
R Table 7

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
	30-00-00 ICE AND RAIN PROTECTION SYSTEM			
	ENGINE NOSE COWL ANTI-ICE OFF (OFF: 3 VDC OR LESS; ON: 7 VDC OR GREATER)			
31-1A	ENG NO. 1	PRESS SW	30-21-13	3
31-2A	ENG NO. 2	PRESS SW	30-21-14	3
31-3A	ENG NO. 3	PRESS SW	30-21-15	3
	ENGINE NOSE COWL ANTI-ICE OVERPRESSURE (NO ON: 3 VDC OR LESS; ON AND OVERPRESSURE: 7 VDC OR GREATER)			
31-1B	ENG NO. 1	PRESS SW	30-21-13	3
31-2B	ENG NO. 2	PRESS SW	30-21-14	3
31-3B	ENG NO. 3	PRESS SW	30-21-15	3

Aids Parameters
Table 8

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
	31-00-00 INSTRUMENTS			
	HARD LANDING INDICATION (MLG: 0 TO 500,000 LBS; NLG: 0 TO 250,000 LBS) 0 TO 5 VDC			
5-1	RIGHT MLG	COMP/IND	31-41-02	1
5-3	LEFT MLG	COMP/IND	31-41-02	1
5-5	NLG	COMP/IND	31-41-02	1
	GROSS WEIGHT (0 TO 500,000 LB) 0 TO 5.0 VDC			
6-1	GROSS WEIGHT	COMP/IND	31-41-02	1
	CENTER-OF-GRAVITY MOMENT (0 TO 58,700,000 IN LB) 0 TO 5.0 VDC			
7-1	CG MOMENT	COMP/IND	31-41-02	1
	CABIN ALTITUDE ABSOLUTE PRESSURE (0 TO 16.0 PSIA) 0 TO 30 MVDC. 5 VDC EXCITATION FROM DAU NO. 2			
60-1	CABIN ALTITUDE	PRESS XMTR	31-32-08	2
	DOCUMENTARY DATA (00000 TO 99999) 5 DIGIT BCD			
162-1	A/C ASSIGNED NOS.	AIDS CEU	31-32-01	1
	DIGITAL FLIGHT DATA RECORDER STATUS NO FLAG: GND; FLAG: OPEN CKT			
M-1	DFDR MAINT FLAG	DFDR	31-31-01	*
M-2	DFDR STATUS FLAG	DFDR	31-31-01	*
	*BITE INDICATOR LIGHTS ON CONTROL UNIT AND CENTRAL ELECTRONICS UNIT			
	ENGINE START/STOP CUE (ENG SHUT DOWN 3 VDC OR LESS; ENG START 7 VDC OR GREATER)			
Q1-1	ENGINE START	FUEL S/O RELAYS	28-24-00	1
Q7-1	ENGINE SHUTDOWN	FUEL S/O RELAYS	28-24-00	1

Aids Parameters (Cont)
Table 8

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
Q7-1 IS RECIPROCAL OF Q1-1 WITH 45 SECOND DELAY				
START OF TAKE-OFF ROLL CUE (POWER GREATER THAN 70 PER CENT: 7 VDC OR GREATER; POWER LESS THAN 70 PER CENT: 3 VDC OR LESS				
Q2-1	START T/O ROLL	THROTTLE SW1A	76-11-06	1
CLIMB CUE				
Q3-1	CLIMB	(CEU PROG FUNCTION)	31-32-01	1
CRUISE CUE (ENGAGED 3 VDC OR LESS; NOT ENGAGED 7 VDC OR GREATER)				
Q4-1	ALT HOLD	PITCH COMP NO. 1	22-11-01	1
Q4-2	ALT HOLD	PITCH COMP NO. 2	22-11-01	1
DESCENT CUE				
Q5-1	DESCENT	(CEU PROG FUNCTION)	31-32-01	1
APPROACH CUE, LANDING GEAR (DOWN/LOCKED: 3 VDC OR LESS; NOT-DOWN/LOCKED 7 VDC OR GREATER				
Q6-1	ALL LDG GEAR	LOGIC BOX	33-18-03	1
AIR/GROUND SENSOR CUE (ON-GRD: 7 VDC OR GREATER; NOT-ON-GRD: 3 VDC OR LESS)				
Q6-2	AIR/GRD SENSOR	LOGIC BOX*	33-18-03	1
*LOGIC BOX IS ON AT LANDING APPROACH TOUCHDOWN				
REFERENCE VOLTAGES				
R-1	115 VAC, PHASE B	ESS B BUS		1, 2, 3
R-3	115 VAC, PHASE A	AIDS ESS PWR BUS		1, 2
R-10	HYD SYS A, 26 VAC	PRESS IND	29-31-09	1

Aids Parameters (Cont)
Table 8

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
R-11	HYD SYS B, 26 VAC	PRESS IND	29-31-09	1
R-12	HYD SYS C, 26 VAC	PRESS IND	29-31-09	3
R-13	HYD SYS D, 26 VAC	PRESS IND	29-31-09	3
R-14	CADC NO. 1 20 (±2)VDC	CADC NO. 1	34-14-01	1
R-15	CADC NO. 2 20 (±2)VDC	CADC NO. 2	34-14-01	3
R-16	TAT REF, 5 VDC	RATED EPR IND,	77-13-01	3

R Aids Parameters
R Table 9

SIGNAL CODE NO.	AIDS PARAMETERS	SIGNAL SOURCE	ATA NO.	DAU INPUT
	32-00-00 LANDING GEAR SYSTEM			
	BRAKE METERED HYDRAULIC PRESSURE (0 TO 3000 PSI) 0 TO 30 MVDC. 5 VDC EXCITATION FROM DAU NO. 2)			
67-1	NORMAL (LH)	PRESS XDCR	32-43-19	2
67-2	NORMAL (RH)	PRESS XDCR	32-43-19	2
67-3	ALTERNATE (LH)	PRESS XDCR	32-43-10	2
67-4	ALTERNATE (RH)	PRESS XDCR	32-43-19	2
	LANDING GEAR IN-TRANSIT (IN-TRANSIT: 7 VDC OR GREATER; NOT-IN-TRANSIT: 3 VDC OR LESS)			
68-1	NLG	LOGIC BOX	33-18-03	2
68-2	LEFT MLG	LOGIC BOX	33-18-03	2
68-3	RIGHT MLG	LOGIC BOX	33-18-03	2

Aids Parameters
Table 10

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
	34-00-00 NAVIGATION SYSTEMS			
	PRESSURE ALTITUDE, COARSE (-945 TO 49,950 FT) 0 TO 11.8 VAC. SYNCHRO EXCITATION 26 VAC PHASE A			
1-1	PRESS ALT NO. 1	CADC NO. 1	34-14-01	1
1-3	PRESS ALT NO. 2	CADC NO. 1	34-14-01	1
	PRESSURE ALTITUDE, FINE (0 TO 5000 FT) 0 TO 360 SYNCHRO DEGREES. 0 TO 11.8 VAC. SYNCHRO EXCITATION 26 VAC PHASE A			
1-2	PRESS ALT NO. 1	CADC NO. 1	34-14-01	1
1-4	PRESS ALT NO. 2	CADC NO. 2	34-14-01	1
	STATIC AIR TEMPERATURE, FINE (-99 TO +55°C) 3.19 TO 4.38 VDC			
2-1	CADC NO. 1		34-14-01	1
2-2	CADC NO. 2		34-14-01	1
	COMPUTED AIR SPEED (0 TO 500 KNOTS) 0 TO 11.8 VAC. 0 KNOTS equals 288 SYNCHRO DEGREES. SYNCHRO EXCITATION 26 VAC PHASE A			
3-1	CAS NO. 2	CADC NO. 1	34-14-01	1
3-2	CAS NO. 2	CADC NO. 2	34-14-01	1
	MACH NUMBER (0 TO 1.0), 0 equals 280 DEGREES OF SYNCHRO, USABLE RANGE 0.175 MACH TO 1.0 MACH. 0 TO 11.8 V. SYNCHRO EXCITATION 26 VAC PHASE A			
4-1	MACH NO. 1	CADC NO. 1	34-14-01	1
4-2	MACH NO. 2	CADC NO. 2	34-14-01	1
	TRUE AIR SPEED (150 TO 600 KNOTS) 0.93 TO 3.72 VDC (RATIOED TO 20 VDC FROM CADC)			
8-1	TAS NO. 1	CADC NO. 1	34-14-01	1
8-2	TAS NO. 2	CADC NO. 1	34-14-01	1

Aids Parameters (Cont)
Table 10

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
ACCELERATION, C.G. (VERTICAL -3 TO +6G; LATERAL -1 TO +1G; LONGITUDINAL -1 TO +1G) 0.2 TO 5.00 VDC				
13-1	VERTICAL	TRIAXIAL ACCEL	31-31-04	1
13-2	LATERAL	TRIAXIAL ACCEL	31-31-04	1
13-3	LONGITUDINAL	TRIAXIAL ACCEL	31-31-04	1
PRESSURE ALTITUDE FLAG, UNCORRECTED (FAIL: 3 VDC OR LESS; NOT-FAIL: 7 VDC OR GREATER)				
38-1	ALTITUDE FLAG	CADC NO. 1	34-14-01	1
38-6	ALTITUDE FLAG	CADC NO. 2	34-14-01	3
STATIC AIR TEMP/TRUE AIR SPEED FLAG (FAIL: 3 VDC OR LESS; NOT-FAIL: 7 VDC OR GREATER)				
38-2	SAT/TAS FLAG	CADC NO. 1	34-14-01	1
38-7	SAT/TAS FLAG	CADC NO. 2	34-14-01	3
COMPUTED AIR SPEED FLAG (FAIL: 3 VDC OR LESS; NOT-FAIL: 7 VDC OR GREATER)				
38-3	CAS FLAG	CADC NO. 1	34-14-01	1
38-8	CAS FLAG	CADC NO. 2	34-14-01	3
MACH NO./ALTITUDE FLAG (FAIL: 3 VDC OR LESS; NOT-FAIL: 7 VDC OR GREATER)				
38-4	MACH NO./ ALT FLAG	CADC NO. 1	34-14-01	1
38-9	MACH NO./ ALT FLAG	CADC NO. 2	34-14-01	3
PITCH ATTITUDE (-85 TO +85 DEGREES) 0 TO 11.8 VAC. SYNCHRO EXCITATION 115 VAC PHASE A. SYNCHRO ROTATION IS POSITIVE FOR CLIMB AND RIGHT BANK, 0 DEGREES PITCH IS 0 DEGREE SYNCHRO POSITION				
39-1	PITCH ATTITUDE	VERT GYRO NO. 1	34-21-04	1

Aids Parameters (Cont)
Table 10

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
ROLL ATTITUDE (-180 TO +180 DEGREES) 0 TO 11.8 VAC. SYNCHRO EXCITATION 115 VAC PHASE A. SYNCHRO ROTATION IS POSITIVE FOR CLIMB AND RIGHT BANK. 0 DEGREE ROLL IS 0 DEGREE SYNCHRO POSITION				
40-1	ROLL ATTITUDE	VERT GYRO NO. 1	34-21-04	-1
DIRECTIONAL HEADING (0 TO 360 DEGREES) 0 TO 11.8 VAC. SYNCHRO EXCITATION 115 VAC PHASE A. SYNCHRO ROTATION IS POSITIVE FOR INCREASING HEADING				
41-1	DIR HDG	COMPASS COUPLER NO. 1	34-22-03	1
LOCALIZER DEVIATION (-0.155 TO +0.155 DDM*) -150 TO +150 MVDC				
114-1	LOCALIZER NO. 1	ILS RCVR NO. 1	34-33-01	3
114-2	LOCALIZER NO. 2	ILS RCVR NO. 2	34-33-01	3
*DDM IS DEPTH OF DEMODULATION				
GLIDE SLOPE DEVIATION (-0.17495 TO +0.17495 DDM) -150 TO +150 MVDC				
115-1	GLIDE SLOPE NO. 1	ILS RCVR NO. 1	34-33-01	3
115-2	GLIDE SLOPE NO. 2	ILS RCVR NO. 2	34-33-01	3
RADIO ALTITUDE (-20 TO +2500 FT) 0 TO 4.59 VDC				
117-1	SYSTEM NO. 1	RAI NO. 1	34-11-04	3
117-2	SYSTEM NO. 2	RAI NO. 2	34-11-04	3
MIDDLE MARKER (OFF: 0 VDC; ON: 6 VDC*) STEADY STATE 6 VDC DURING TEST)				
152-1	MARKER BLIP	MRKR BEACON RCVR NO. 1	34-35-01	1
*PULSE WIDTH CODED				

R Aids Parameters (Cont)
R Table 10

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
	LOCALIZER TUNE (TUNED: 3 VDC OR LESS; NOT-TUNED: 7 VDC OR GREATER)			
163-1	SYSTEM NO. 1	VHF NAV ACC UNIT	34-55-06	3
163-2	SYSTEM NO. 2	VHF NAV ACC UNIT	34-55-06	3

Aids Parameters
Table 11

SIGNAL CODE NO.	AIDS PARAMETERS	SIGNAL SOURCE	ATA NO.	DAU INPUT
	36-00-00 PNEUMATIC SYSTEM			
	BLEED AIR SUPPLY DUCT PRESSURE (0 TO 150 PSIG) 0 TO 3.667 VDC			
54-1	ENG NO. 1	PRESS XDCR	36-21-02	1
54-2	ENG NO. 2	PRESS XDCR	36-21-02	1
54-3	ENG NO. 3	PRESS XDCR	36-21-02	1
	ENGINE BLEED AIR SHUTOFF VALVE (CLOSED: 7 VDC OR GREATER; NOT-CLOSED: 3 VDC OR LESS)			
57-1	ENG NO. 1	HI-PRESS REM RLY	36-11-01	3
57-2	ENG NO. 2	HI-PRESS REM RLY	36-11-02	3
57-3	ENG NO. 3	HI-PRESS REM RLY	36-11-03	3
	BLEED AIR DUCT TEMPERATURE (-20 TO +320°C) 0 TO 5.00 VDC. 2 MA EXCITATION FROM ECS SIGNAL CONDITIONER			
101-1	ENG NO. 1	SIGNAL COND	21-63-40	3
101-2	ENG NO. 2	SIGNAL COND	21-63-40	3
101-3	ENG NO. 3	SIGNAL COND	21-63-40	3
	ENGINE SPLITTER TEMPERATURE (-20 TO +200°C) 92 TO 177.48 MVDC. 1 MA EXCITATION FROM DAU NO. 2			
161-1	ENG NO. 1	TEMP SENSOR	36-22-24	2
161-2	ENG NO. 2	TEMP SENSOR	36-22-24	2
161-3	ENG NO. 3	TEMP SENSOR	36-22-24	2

R Aids Parameters
RR Table 12

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
	49-00-00 AIRBORNE AUXILIARY POWER			
	APU TGT (0 TO 1200°C) 0 TO 5.0 VDC			
74-1	APU TGT	TGT INDICATOR	49-71-02	3
	APU RPM (0 TO 120 PER CENT) 0 TO 5.0 VDC			
75-1	APU RPM	N1 INDICATOR	49-75-02	3

Aids Parameters
Table 13

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
	73-00-00 ENGINE FUEL AND CONTROL SYSTEM			
	ENGINE FUEL FLOW RATE (0 TO 2000 LB/HR) 0 to 5.0 VDC			
26-1	ENG NO. 1	FLOW RATE IND	73-34-03	1
26-2	ENG NO. 2	FLOW RATE IND	73-34-03	1
26-3	ENG NO. 2	FLOW RATE IND	73-34-03	1
	ENGINE FUEL FLOW REGULATOR-THROTTLE ANGLE 91 TO 91.0 DEGREES) 0 TO 11.8 VAC. TOTAL SYNCHRO ROTATION 270 DEGREES. SYNCHRO EXCITATION 26 VAC PHASE A FROM DAU NO. 2			
32-1	ENG NO. 1	SYNCHRO	73-21-01	2
32-2	ENG NO. 2	SYNCHRO	73-21-01	2
32-3	ENG NO. 3	SYNCHRO	73-21-01	2
	ENG FUEL FLOW REGULATOR-DIFFERENTIAL PRESSURE (0 TO 320 PSI) 0 TO 5 VDC			
37-1	ENG NO. 1	DIFF PRESS XDCR	73-38-01	2
37-2	ENG NO. 2	DIFF PRESS XDCR	73-38-01	2
37-3	ENG NO. 3	DIFF PRESS XDCR	73-38-01	2

Aids Parameters
Table 14

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
	75-00-00 ENGINE AIR			
	FAN OUTLET PRESSURE (0 TO 30 PSIA) 0 TO 5 VDC			
76-1	ENG NO. 1	PRESS XDCR		2
76-2	ENG NO. 2	PRESS XDCR		2
76-3	ENG NO. 3	PRESS XDCR		2
	I.P. COMPRESSOR DELIVERY PRESSURE (0 TO 125 PSIA) 0 TO 5 VDC			
77-1	ENG NO. 1	PRESS XDCR	75-42-02	2
77-2	ENG NO. 2	PRESS XDCR	75-42-02	2
77-3	ENG NO. 3	PRESS XDCR	75-42-02	2
	H.P. COMPRESSOR DELIVERY PRESSURE (0 TO 5) VDC			
78-1	ENG NO. 1	PRESS XDCR	75-42-00	2
78-2	ENG NO. 2	PRESS XDCR	75-42-00	2
78-3	ENG NO. 3	PRESS XDCR	75-42-00	2
	I.P. COMPRESSOR DELIVERY TEMP (+57.0 TO 237.0°C) 2.31 TO 9.63 MVDC. 5 VDC POWER FROM DAU NO. 2			
79-1	ENG NO. 1	THERMOCOUPLE	75-43-01	2
79-2	ENG NO. 2	THERMOCOUPLE	75-43-01	2
79-3	ENG NO. 3	THERMOCOUPLE	75-43-01	2
	H.P. COMPRESSOR DELIVERY TEMP (185.0 TO 514.0°C) 7.53 TO 21.24 MVDC. 5VDC POWER FROM DAU NO. 2			
80-1	ENG NO. 1	THERMOCOUPLE	75-43-02	2
80-2	ENG NO. 2	THERMOCOUPLE	75-43-02	2
80-3	ENG NO. 3	THERMOCOUPLE	75-43-02	2

R Aids Parameters (Cont)
R Table 14

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
TURBINE COOLING AIR TEMP (200 TO 1100°C) 8.13 TO 45.16 MVDC. 5 VDC TRJ POWER FROM DAU NO. 2				
R 85-1	ENG NO. 1	THERMOCOUPLE NO. 1	75-44-01	2
R 85-2	ENG NO. 1	THERMOCOUPLE NO. 2	75-44-02	2
R 85-5	ENG NO. 2	THERMOCOUPLE NO. 1	75-44-01	2
R 85-6	ENG NO. 2	THERMOCOUPLE NO. 2	75-44-02	2
R 85-9	ENG NO. 3	THERMOCOUPLE NO. 1	75-44-01	2
R 85-10	ENG NO. 3	THERMOCOUPLE NO. 2	75-44-02	2

R Aids Parameters
R Table 15

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
	77-00-00 ENGINE INDICATING SYSTEM			
	LOW-PRESSURE COMPRESSOR N1 RPM (0 TO 110 PER CENT) 0 TO 5.0 VDC			
21-1	ENG NO. 1	N1 IND	77-12-05	1
21-2	ENG NO. 2	N1 IND	77-12-05	1
21-3	ENG NO. 3	N1 IND	77-12-05	1
	INTERMEDIATE-PRESSURE COMPRESSOR N-2 RPM (0 TO 110 PER CENT) 0 TO 5 VDC			
22-1	ENG NO. 1	FE/SO N2 IND	77-12-06	1
22-2	ENG NO. 2	FE/SO N2 IND	77-12-06	1
22-3	ENG NO. 3	FE/SO N2 IND	77-12-06	1
	HIGH-PRESSURE COMPRESSOR N3 RPM (0 TO 110 PER CENT) 0 TO 5 VDC			
23-1	ENG NO. 1	N3 IND	77-12-08	1
23-2	ENG NO. 2	N3 IND	77-12-08	1
23-3	ENG NO. 3	N3 IND	77-12-08	1
	TURBINE GAS TEMP (0 TO 1000°C) 0 TO 5.0 VDC			
24-1	ENG NO. 1	TGT IND	77-21-03	1
24-2	ENG NO. 2	TGT IND	77-21-03	1
24-3	ENG NO. 3	TGT IND	77-21-03	1
	NO. 1 ENGINE VIBRATION (0 TO 2.80 UNITS) 0 TO 5.0 VDC			
30-1A	FRONT (HIGH)	SIGNAL COND	77-31-03	2
30-1B	FRONT (MED)	SIGNAL COND	77-31-03	2
30-1C	FRONT (LOW)	SIGNAL COND	77-31-03	2

Aids Parameters (Cont)
Table 15

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
30-2A	REAR (HIGH)	SIGNAL COND	77-31-03	2
30-2B	REAR (MED)	SIGNAL COND	77-31-03	2
30-2C	REAR (LOW)	SIGNAL COND	77-31-03	2
NO. 2 ENGINE VIBRATION (0 TO 2.80 UNITS) 0 TO 5.0 VDC				
30-3A	FRONT (HIGH)	SIGNAL COND	77-31-03	2
30-3B	FRONT (MED)	SIGNAL COND	77-31-03	2
30-3C	FRONT (LOW)	SIGNAL COND	77-31-03	2
30-4A	REAR (HIGH)	SIGNAL COND	77-31-03	2
30-4B	REAR (MED)	SIGNAL COND	77-31-03	2
30-4C	REAR (LOW)	SIGNAL COND	77-31-03	2
NO. 3 ENGINE VIBRATION (0 TO 2.80 UNITS) 0 TO 5.0 VDC				
30-5A	FRONT (HIGH)	SIGNAL COND	77-31-03	2
30-5B	FRONT (MED)	SIGNAL COND	77-31-03	2
30-5C	FRONT (LOW)	SIGNAL COND	77-31-03	2
30-6A	REAR (HIGH)	SIGNAL COND	77-31-03	2
30-6B	REAR (MED)	SIGNAL COND	77-31-03	2
30-6C	REAR (LOW)	SIGNAL COND	77-31-03	2
INTEGRATED EXHAUST PRESSURE, EPR-1 (-0.02 TO 1.00) -0.0875 TO +4.370 VDC				
164-1	ENG NO. 1	EPR IND	77-11-03	1
164-2	ENG NO. 2	EPR IND	77-11-03	1

Aids Parameters (Cont)
Table 15

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
164-3	ENG NO. 3	EPR IND	77-11-03	1
EPR VOLTAGE REFERENCE (3.50 VDC MINIMUM, 4.37 VDC NOMINAL, 5.00 VDC MAXIMUM)				
165-1	ENG NO. 1	EPR IND	77-11-03	1
165-2	ENG NO. 2	EPR IND	77-11-03	1
165-3	ENG NO. 3	EPR IND	77-11-03	1
EPR COMPUTER INDICATOR, TAT (-60 TO +60°C) 0 TO 5 VDC. 0°C EQUALS 2.5 VDC				
167-1	TAT	RATED EPR IND	77-13-02	3
EPR COMPUTER INDICATOR, TAT FLAG (FAIL: 3 VDC OR LESS; NOT-FAIL: 7 VDC OR GREATER. (R16) 5 VDC REF VOLTAGE RATIOED TO 5 VDC IN EPR INDICATOR				
167-2	TAT FLAG	RATED EPR IND	77-13-02	3

Aids Parameters
Table 16

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
	78-00-00 ENGINE EXHAUST			
	ENGINE THRUST REVERSER (IN-TRANSIT: 7 VDC OR GREATER; NOT IN-TRANSIT: 3 VDC OR LESS)			
36-1	ENG NO. 1	LOGIC BOX	33-18-03	1
36-2	ENG NO. 2	LOGIC BOX	33-18-03	1
36-3	ENG NO. 3	LOGIC BOX	33-18-03	1
	ENGINE THRUST REVERSER (DEPLOYED: 7 VDC OR GREATER; NOT-DEPLOYED: 3 VDC OR LESS)			
122-1	ENG NO. 1	LOGIC BOX	33-18-03	1
122-2	ENG NO. 2	LOGIC BOX	33-18-03	1
122-3	ENG NO. 3	LOGIC BOX	33-18-03	1

R R R Aids Parameters
Table 17

SIGNAL CODE NO.	AIDS PARAMETER	SIGNAL SOURCE	ATA NO.	DAU INPUT
		79-00-00 ENGINE OIL		
	ENGINE OIL TEMPERATURE (-60 TO +160°C) 0 TO 5.0 VDC			
27-1	ENG NO. 1	OIL TEMP IND	79-34-02	1
27-2	ENG NO. 2	OIL TEMP IND	79-34-02	1
27-3	ENG NO. 3	OIL TEMP IND	79-34-02	1
	ENGINE OIL PRESSURE (0 TO 100 PSI) 0 TO 32.0 MVDC			
28-1	ENG NO. 1	OIL PRESS IND	79-31-04	1
28-2	ENG NO. 2	OIL PRESS IND	79-31-04	1
28-3	ENG NO. 3	OIL PRESS IND	79-31-04	1
	ENGINE OIL QUANTITY (0 TO 22.0 QTS) 0 TO 5.0 VDC			
29-1	ENG NO. 1	OIL QTY IND	79-37-02	1
29-2	ENG NO. 2	OIL QTY IND	79-37-02	1
29-3	ENG NO. 3	OIL QTY IND	79-37-02	1

R 3. Central Electronics Unit (CEU)

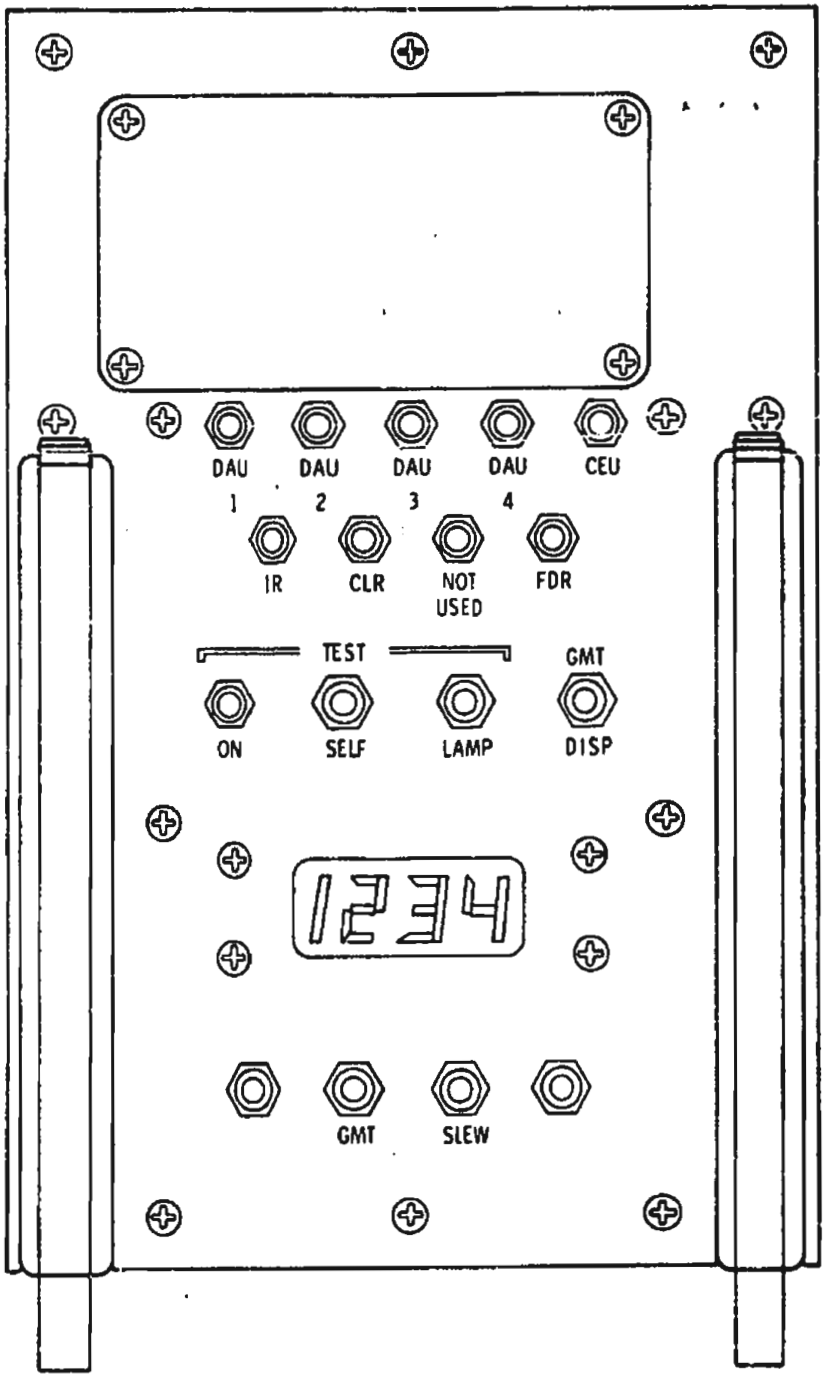
A. Description

R The CEU is housed in a one-half ATR case mounted on a standard ARINC equipment mounting rack. The CEU is located
R in the AIDS equipment rack in the FESC, zone 113. A vertically mounted chassis plate in the CEU housing contains
R a plug-in power supply, a DFDR circuit card, and 15 module connectors, none of which receive mating plug-in modules. Remaining module connectors are spares for expansion of memory capabilities. The module connectors are interconnected by point-to-point wiring, with termination at two external connectors at rear of the unit.

Two latching handles on the front of the CEU are the insertion/retraction mechanisms for installing and removing the unit. When the CEU is installed, the latching handles lock the CEU into the mounting rack.

The CEU is cooled by air drawn in through the top-left side of the housing. The cooling air is drawn across the finned area of a plenum-enclosed heat sink. The heat sink conducts heat away from the internal electronics; the forced air, through convection, cools the heat sink. The air is exhausted through a mesh screen at the bottom of the housing.

The front panel of the CEU (Ref. Fig. 5) contains controls and indicators for monitoring the operational status of each unit of the AIDS and for initiating a system self-test. A
R Greenwich Mean Time (GMT) digital clock display and associated controls provide a means of displaying and resetting the time. Signals representing the time displayed on the digital display of the GMT clock are generated and processed by the CEU so that each recorded set of parameters is accompanied with the time they were acquired. The function of each control and indicator contained on the front panel of the CEU is listed in Table 1. Two connectors, under a dust cover at the top of the front panel, provide for testing and memory loading of the CEU; however, these connectors are not normally used while the CEU is installed in the aircraft.



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CEU Controls and Indicators
Figure 5

EFFECTIVITY: ALL

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R R CEU Control and Indicator Functions
Table 18

CONTROL/INDICATOR	FUNCTION
BITE Indicator Group	
DAU 1	Lights to indicate a malfunction of DAU No. 1, zone 113
R DAU 2	Lights to indicate a malfunction of DAU No. 2, zone 137
R DAU 3	Lights to indicate a malfunction of DAU No. 3, zone 113
DAU 4	Not used
CEU	Lights to indicate a malfunction of the CEU, zone 113
R IR	Lights to indicate a malfunction of the IR, zone 113
R CLR	Lights to indicate a malfunction of the CLR, zone 113
R FDR	Lights to indicate a malfunction of the DFDR
R GMT Clock Group	
GMT DISP momentary pushbutton switch	When pressed, causes GMT digital display to light
GMT digital display	Provides display (when GMT DISP switch is pressed) of GMT to nearest minute
GMT SLEW momentary pushbutton switches	Provide means of resetting GMT clock. When presssed, cause corresponding segment of GMT digital display to increment one digit at a time. (GMT DISP switch must also be pressed for digits to slew; this prevents accidental update)

CEU Control and Indicator Functions (Cont)
Table 18

CONTROL/INDICATOR	FUNCTION
TEST Group	
TEST LAMP momentary pushbutton switch	When pressed, checks operation of indicating lamps on front panel
TEST SELF momentary pushbutton switch	When pressed, initiates self-test routine of the AIDS (accomplished through BITE circuits); results are indicated by status of BITE indicators
TEST ON indicator	Lights to indicate test is in progress when activated for use. (Cannot be lamp tested until activated for use.)

B. Operation

The CEU is a fractional, binary, stored-program, general purpose, digital computer which provides all decisional control and data processing functions for the AIDS (Ref. Fig. 6). The stored program may be altered through the use of external loading equipment. The following functions of the AIDS are mechanized in the CEU through programming:

(1) Control of multiplexing of signals from the three DAUs

(2) Control of the type of internal signal converter to be used with each input signal

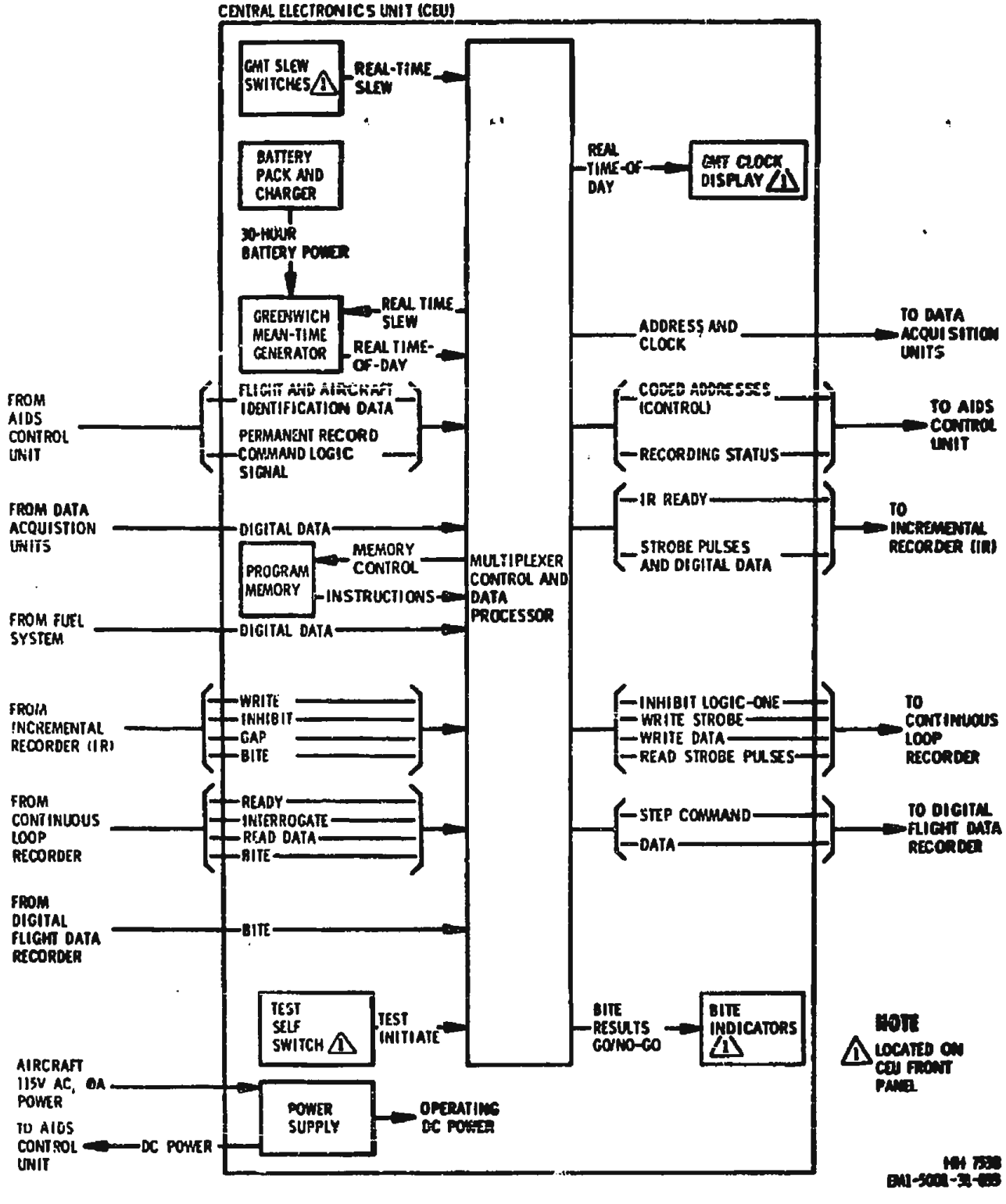
(3) Multiplexing of incoming digital outputs from the three DAUs

(4) Processing of synchro signal parameters to obtain shaft angles as output parameters

(5) Processing of specific signals in conjunction with converted reference voltages to eliminate effects of long-term reference-voltage variations

(6) Scaling of parameters to normalized range of 000 to 999

(7) Sensing and recording of event-time for selected discrete signals



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CEU Functional Block Diagram
Figure 6

(8) Initiating of trend data recording periods as a function of monitored signals

(9) Initiating of trouble data recording periods as a function of FE/SO Command

(10) Reading of flight identification data at the ACU

(11) Conversion of binary numbers to decimal form as required

(12) Recording of cyclic scan of all parameters continuously by the CLR

(13) Selection of that data, during a maintenance set recording period, from CLR storage which corresponds to the system and subsystem identified at ACU

(14) Control of recording of trend set and maintenance set data by the IR as function of data source and time

(15) Providing the means for leaving record gaps on tape at the beginning of each flight leg and at the beginning and end of each maintenance set

(16) Formatting the output label and parameter data for recording

(17) Monitoring operation of all units and indicating malfunctions on BITE indicators on front panel

(18) Providing independent data outputs for each using recorder

The CEU processes all parameters from the three DAUs and the ACU by a stored program of addresses. The data is scaled, formatted, and outputted to the using recorders. The control capabilities of the CEU provide for independent operation of the CLR and the IR. Control logic includes circuits necessary for operation of each recorder, including circuits for insertion of record identification data, proper formatting of output data, and transfer of data from the CLR to the IR.

The CEU is capable of testing itself and other units of the AIDS which it controls. A programmed self-test routine is contained in the CEU computer program memory which systematically interrogates and monitors response signals from the other AIDS units. The only unit not contained in the self-test routine is the ACU. The ACU test capability is limited to the testing of front panel indicator lamps. The other AIDS units are provided with BITE circuitry which

enable the units to supply a digital signal to the CEU representing their operational status. The following two modes of self-test are provided:

(1) Manual self-test is initiated by pressing the TEST SELF pushbutton. Failure occurring during this mode is indicated on front panel indicators. The self-test continues and all failure indications are maintained as long as the TEST SELF pushbutton is pressed.

(2) Automatic self-test is performed under program control at predetermined intervals. Failure occurring during this mode is recorded on the IR but is not indicated on front panel indicators.

An internal real-time clock-generation circuit provides digitized signals, representing time-of-day, to the data processor. The data processor uses these signals to provide a format to the recorders on a time/data basis. A four-digit (hours-and-minutes) clock display and associated slew switches on the front panel monitor the output of the clock circuit and reset the time as required. A battery pack and associated battery charger provide back-up power for the clock so as to maintain correct time for 30 hours minimum after aircraft power is removed from the CEU.

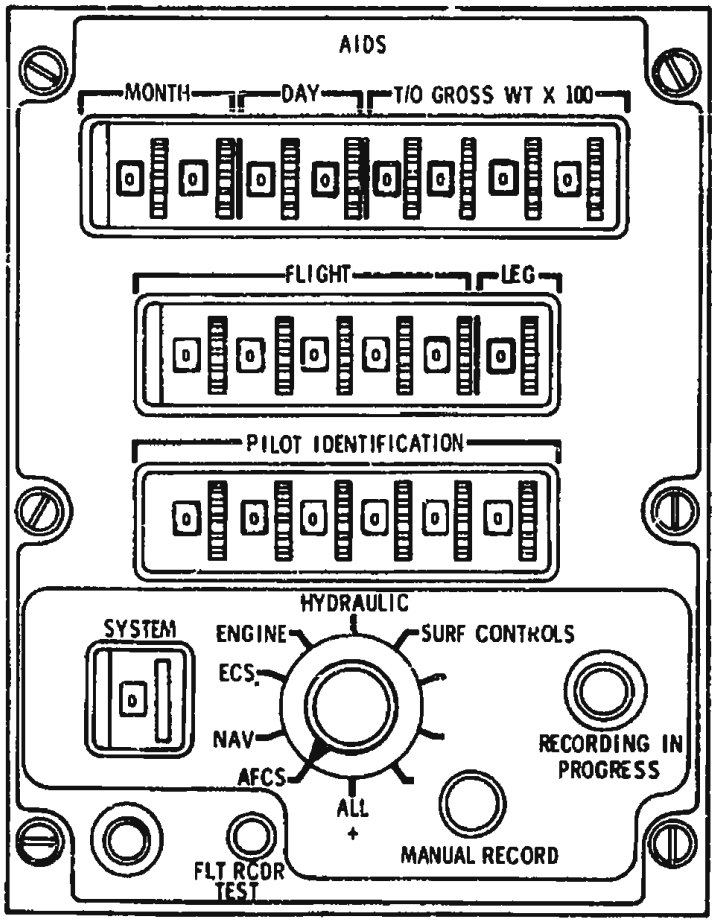
4. AIDS Control Unit (ACU)

A. Description

The ACU is mounted in the lower instrument panel of the FE/SO console, zone 215. Two connectors at the rear of the unit provide system interface connections.

The upper portion of the ACU front panel (Ref. Fig. 7) contains thumbwheel switches used to enter flight identification data into the (CEU) for processing. The data entries are converted directly by the switches into digital form, read out to the CEU, and transferred to the (CLR) for recording before each data scan.

R The lower portion of the ACU panel contains switches required to select and initiate a permanent record of a system and subsystem indicating a problem. After the system and subsystem to be permanently recorded are selected by the system and subsystem select switches, pressing of the MANUAL RECORD switch results in data stored in the CLR being transferred to the IR by means of the CEU. The data stored on the magnetic tape of the CLR comprises all system parameters which were acquired 5 minutes before the pressing



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ACU Controls and Indicators
Figure 7

of the MANUAL RECORD switch. Only the parameters of the system and subsystem selected are transferred to the IR.

R The functions of the ACU controls and indicators are listed in Table 19.

R ACU Control and Indicator Functions
Table 19

CONTROL/INDICATOR	FUNCTION
Data Entry Group	
MONTH and DAY thumbwheel switches	Enter month and day of flight into central electronic unit (CEU) for data processing and recording
T/O GROSS WT X 100 thumbwheel switches	Enter takeoff gross weight of aircraft into CEU for data processing and recording
FLIGHT thumbwheel switches	Enter flight number of aircraft into CEU for data processing and recording
LEG thumbwheel switch	Enter leg of flight into CEU for data processing and recording
PILOT IDENTIFICATION thumbwheel switches	Enter pilots identification number into CEU for data processing and recording
Permanent record control group	
R System selector switch	Selects system from which a trouble data sample is to be recorded on the IR
SYSTEM thumbwheel switch	Selects subsystem (within the system selected by the system selector switch) from which a trouble data sample is to be recorded on the IR
MANUAL RECORD momentary pushbutton switch	When pressed, initiates sequence resulting in a trouble data sample to be transcribed on the IR
RECORDING IN PROGRESS indicator	Lights when CEU acknowledges activation of the MANUAL RECORD pushbutton circuitry; remains lighted until recording of trouble data is complete

ACU Control and Indicator Functions (Cont)
Table 19

CONTROL/INDICATOR	FUNCTION
FLT RCDR TEST momentary pushbutton switch	When pressed, checks operational status of the DFDR; DFDR being in operational status is indicated by light associated with pushbutton switch coming on

B. Operation

The ACU (Ref. Fig. 8) dc operating voltages are supplied by the CEU. Data in digital form is entered into the ACU by means of the front panel thumbwheel selector switches and applied to a data selection logic circuit. The logic circuit senses the switch positions (number to which each thumbwheel switch is set). The aircraft identification number (a fixed, prewired, digital input to the ACU) is also sensed by the data selection logic circuit. At intervals determined by the CEU program, the ACU receives a series of seven coded addresses. An address decoder circuit decodes the assigned addresses. This initiates a sequence that causes all the switch data to be transferred to the CEU in seven discrete steps. The transferred data is recorded before each data scan.

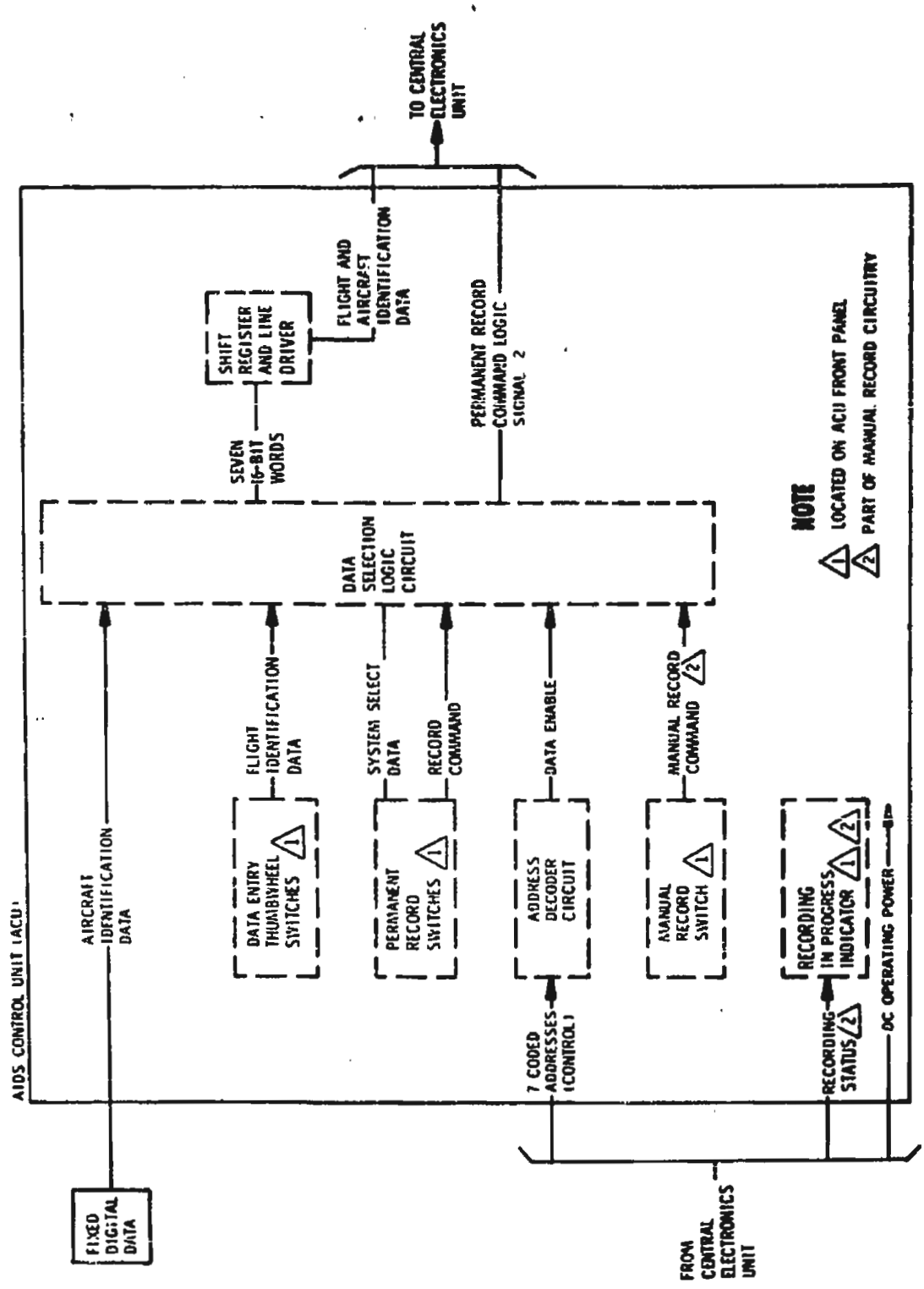
The pressing of the MANUAL RECORD switch is also sensed by the data selection logic circuit. A logic signal, directed to the CEU, instructs it to initiate a permanent record of parameters selected by the system and subsystem select switches. The CEU acknowledges the MANUAL RECORD request by returning a recorder-status signal to light the RECORDING IN PROGRESS indicator. The indicator remains lighted until the IR completes the recording of the requested data.

5. Data Acquisition Unit (DAU)

A. Description

The AIDS system includes three DAUs located as follows: DAU No. 1 and 3 are installed in the FESC, zone 113; and DAU No. 2 is installed in the MESC, zone 137. The DAUs are identical and interchangeable.

Each DAU (Ref. Fig. 1) is housed in a one-half ATR case mounted on a standard ARINC equipment mounting rack. A vertically mounted chassis plate in the DAU housing contains connectors and mating plug-in circuit cards. The circuit



R
R ACU Functional Block Diagram
Figure 8

EFFECTIVITY: ALL

050B

card connectors are interconnected by point-to-point wiring, with termination at two external connectors at the rear of the unit.

Two latching handles on the front of the DAU are the insertion/retraction mechanisms for installing and removing the unit. When a DAU is installed, the latching handles lock the unit into the mounting rack.

B. Operation

Each DAU (Ref. Fig. 9) has the necessary circuitry (channels) to acquire (sample) 40 ac signals, 80 dc signals, 64 discrete (on/off) signals, and 8 low-frequency (vibration) signals. Since the sampled aircraft signals vary in amplitude, scale factor, and other characteristics, they are preconditioned to adjust the characteristics to a normalized level; the various amplitudes are scaled to the same level to maintain the resolution of low-level signals. The signals are multiplexed by selecting one sample at a time (under control of the CEU) for processing.

Sampled thermocouple outputs are compensated for varying ambient temperatures by thermocouple reference junctions before being applied to a DAU. The DAUs provide excitation voltages for the thermocouple reference junctions used to monitor parameters exclusively for AIDS.

Each ac channel accepts either a three-wire synchro output or one of the following ac voltage ranges:

0 to 26V rms

0 to 11.8V rms

0 to 9.0V rms

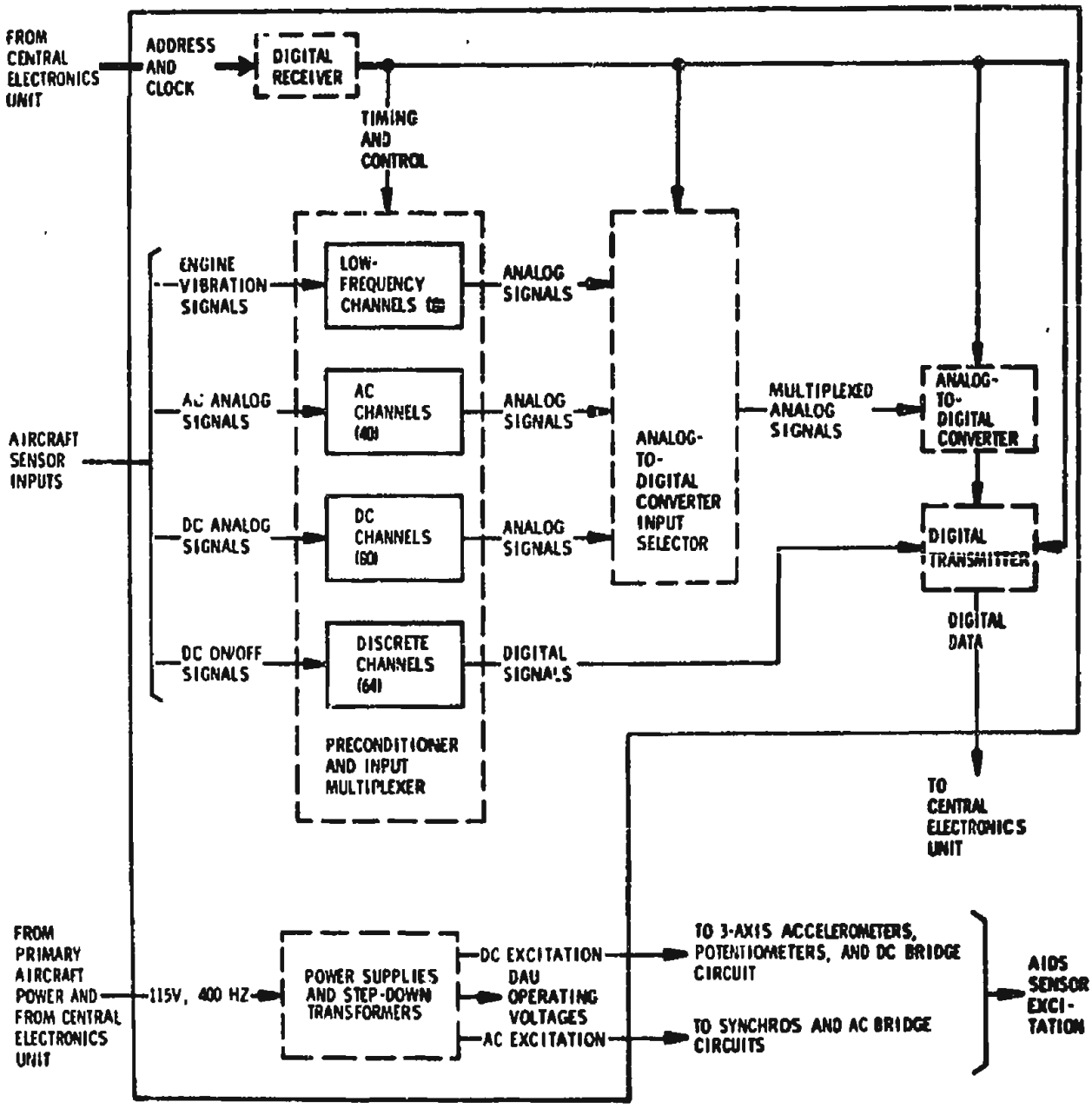
0 to 6.8V rms

0 to 5.0V rms

0 to 2.8V rms

All the sampled ac input parameters are received by modified Scott-T transformers. Sample synchro or ac signals are applied to appropriate transformer inputs so that each transformer output is five volts peak, full-scale, when the sampled signal is at maximum value.

Each dc channel accepts full-scale inputs ranging between minus five and plus five volts. A low-level amplifier amplifies those dc voltages which are less than plus or



HM 7541
EMI-5001-31-02

R
R

DAU Typical Block Diagram
Figure 9

EFFECTIVITY: ALL

0508

minus one volt; gain is a function of the CEU program which selects the gain in accordance with the signal being monitored. Gain is selected so that the highest level of the signal being monitored is 5 volts at the amplifier output.

The low-frequency (vibration) channels accept signals representing engine vibrations. Since these parameters are low-frequency, low-level signals, the low-frequency channels amplify and perform an ac-to-dc conversion of the signals. Amplification is made so that the monitoring channel output is between zero and five volts dc, corresponding to the magnitude of vibration on a scaled basis.

The discrete channels accept dc on/off signals. The on/off signals are converted to digital levels, multiplexed, and transmitted by a digital transmitter to the CEU for further processing.

Analog signals from the ac, dc, and low-frequency channels are applied through an analog-to-digital (A-D) converter input selector to an A-D converter; selector multiplexes the analog signals to allow time-sharing of the converter. The converter changes the analog parameters to a digital format having a resolution of 10 digital bits. The digitized parameters are transmitted by the digital transmitter to the CEU for further processing.

The DAU provides excitation voltages for various transducers used to monitor aircraft parameters only for the AIDS. The voltages are provided so that if one excitation voltage output is short-circuited, it will not affect other excitation voltage outputs. The following excitation voltages are provided:

Four 26V rms outputs for synchros and ac bridge circuits

One ±10V dc output for strain-gage bridge circuits

Three ±5V dc outputs for potentiometers and bridge circuits

R One 28V dc output for the triaxial accelerometer

6. Incremental Recorder (IR)

A. Description

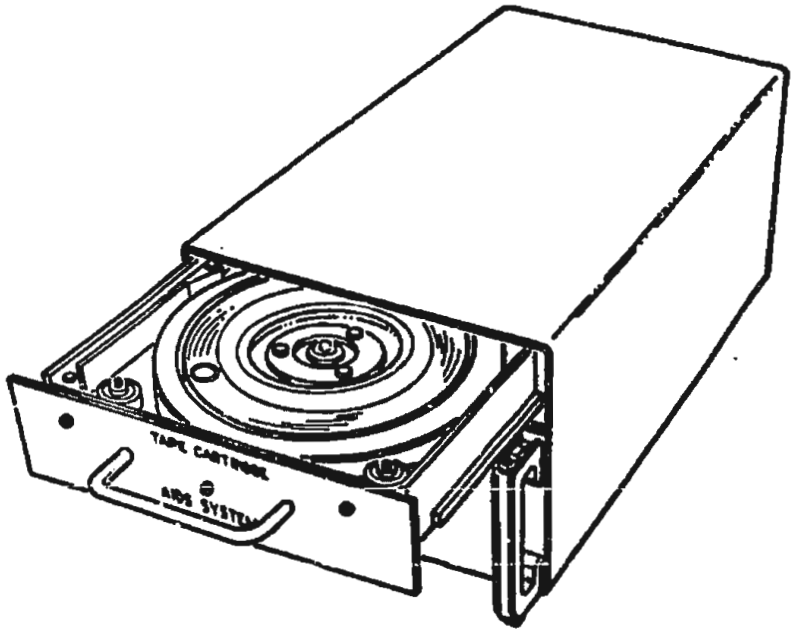
The IR (Ref. Fig. 10) is housed in a one-ATR case mounted on a standard ARINC equipment mounting rack. The IR is

installed in the FESC, zone 113. The recorder contains a slide-rail-mounted, plug-in, magnetic tape cartridge. The tape cartridge is removable from the front of the IR; when installed, the cartridge is locked in place by use of a latch handle on the front of the IR. An electrical connector at the rear provides system interface.

The tape cartridge is a rigid boxlike structure. It incorporates a drive capstan, drive belt, magnetic head, tape guiding elements, and the reel cartridge and take-up reel. The cartridge interfaces with the IR through a rear pin-guide connector and a mechanical drive element. The cartridge is positioned by nylon runners which attach to the sides of the IR housing. A clutch engages the capstan when the cartridge is inserted and locked in the IR. The stepper (stepping capstan-drive motor and control circuits) is external to the cartridge.

Four internal switches identified as STOP, LOAD, UNLOAD, and REWIND are used when replacing the tape.

Two latching handles on the front of the IR are the insertion/retraction mechanisms for installing and removing the IR. When the IR is installed, the latching handles lock the unit into the mounting rack.



HH 6972
M1-5000-31-606

Incremental Recorder
Figure 10

B. Operation

The IR (Ref. Fig. 11) receives 115V ac, 400-Hz, Phase C operating power through closed contacts of the time delay relay in the FESC, zone 112, at engine startup. If recorder operation is to be initiated without engine startup, the POWER OVERRIDE switch, located above the CEU, zone 113, must be operated to energize the IR. The 115V ac power is applied to energize two power supplies in the IR. One power supply is a full-wave rectifier which supplies voltages to the stepper control circuit. The other power supply consists of three full-wave rectifier-series regulator circuits which supply regulated voltages to the recorder circuits.

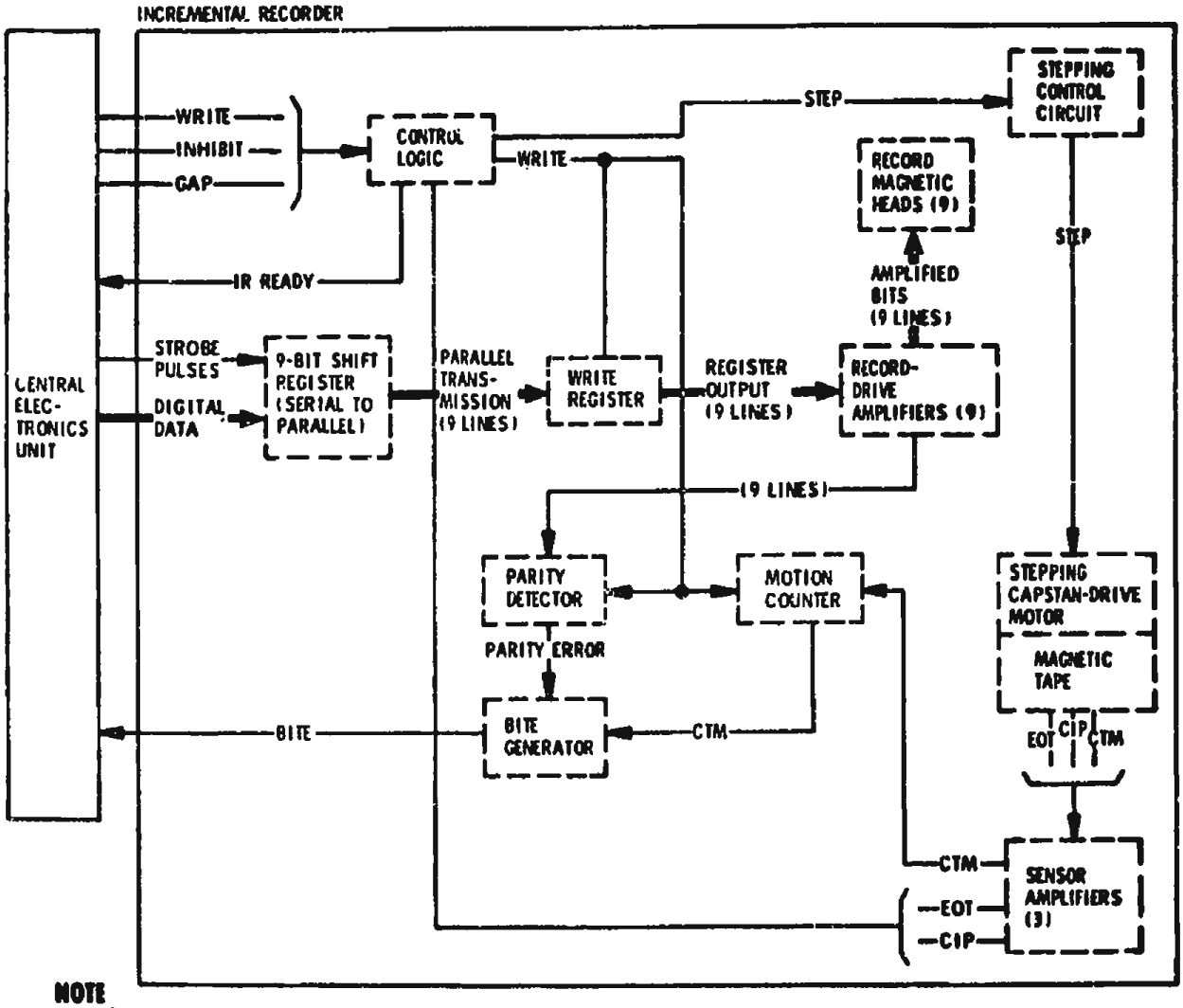
The IR, upon command, accepts digital data from the CEU, converts it to a useable format, and records it on the nine-track magnetic tape.

R When power is applied to the IR, the stepping motor and logic circuits are energized. An IR-ready signal, confirming that the IR can accept data, is sent to the CEU. Data from the CEU consists of 17 strobe pulses, and 9 bits of data coincident with the last 9 strobe pulses. The strobe pulses gate the data bits into a 9-bit shift register whose output is a 9-bit parallel transmission.

After the data is strobed into the 9-bit shift register, a write-signal is applied to the control logic; the logic generates a signal to shift the 9-bit shift register output into a write register. The output of the write register is applied through a record-drive amplifier to a record magnetic head; one amplifier and one head are assigned for each bit in the 9-bit data frame. The magnetic tape is magnetically saturated; that is, one bit of data is written on each track of the tape.

Control signals from the CEU include a write signal, a gap signal, and an inhibit signal. Each write signal may occur at rates up to 150 per second to initiate a one-step cycle to the stepping motor. In this manner, up to 150 data frames of 9 bits each may be written on the tape per second.

Upon receiving the gap signal, the logic circuit inhibits the generation of the IR-ready signal and sends a signal to the stepping motor control circuit to generate a 12-inch gap on the tape. The motor control circuit increases the stepping rate to 500 steps per second for 6 seconds to move the tape 12 inches. During the time the tape gap is being generated, the write signal to the write register is inhibited to prevent writing.



NOTE

1 ⟶ PRIMARY DATA
2 CIP-CARTRIDGE-IN-PLACE SIGNAL
3 CTM-CLOCKED-TAPE MOTION SIGNAL
4 EOT-END-OF-TAPE SIGNAL

MH 7627 LMI-5001-31-00

R
R

IR Functional Block Diagram
Figure 11

EFFECTIVITY: ALL

Upon receiving the inhibit signal, the logic circuit inhibits writing data and tape motion.

PE (parity error), EOT (end-of-tape), CTM (clocked tape motion), and CIP (cartridge in place) signals are BITE signals directed to the CEU to indicate a malfunction. A parity detector monitors the outputs of the nine record amplifiers. The sum of the nine bits in each data frame is checked for odd parity. If a parity error exists, a PE signal is applied to a BITE generator.

As the tape moves across an EOT sensor, an EOT signal is applied through an error detector in the parity detector to the BITE generator.

As the tape moves in response to write pulses, a CTM sensor generates CTM pulses which reset a counter to count. If the tape does not move as expected, the counter overflows, generating a CTM signal to the BITE generator.

An electrical interlock between the connector of the tape cartridge and the mating connector on the IR senses a tape cartridge properly installed, to generate a cartridge-in-place signal. When the tape cartridge is not properly inserted, a BITE signal is generated to trigger the CEU.

7. Continuous Loop Recorder (CLR)

A. Description

The CLR (Ref. Fig. 1) is housed in a one-half ATR case mounted on a standard ARINC equipment mounting rack. The CLR is installed in the FESC, zone 113. The recorder contains a drive capstan, read and write magnetic heads, and tape guiding elements housed within the CLR tape storage bin. A synchronous motor mounted outside the tape storage bin drives the capstan to move recording tape past the magnetic heads at a rate of 3.75 inches per second. The capstan, tape guiding elements, and drive motor comprise the tape transport mechanism. Three full-wave rectifier, series regulator circuits convert aircraft primary 115V ac power to regulated voltages for operating the CLR. An electrical connector at the rear of the CLR provides electrical interface.

Two latching handles on the front of the CLR are the insertion/retraction mechanisms for installing and removing the CLR. When the CLR is installed, the latching handles lock the unit into the mounting rack.

B. Operation

The CLR (Ref. Fig. 12) receives 115V ac, 400-Hz, Phase B operating power through closed contacts of the time-delay relay in the FESC, zone 112, at engine startup. If recorder operation is to be initiated without engine startup, the POWER OVERRIDE switch, located above the CEU, zone 113, must be operated to energize the CLR. The 115V ac power is applied to the tape drive motor and to the CLR power supply. The power supply generates regulated voltages for the circuits within the recorder.

The CLR accepts, upon command, digital data from the CEU and records the data in serial form on a single track of the magnetic tape. The tape enters the storage bin. Five minutes later, the data-bearing tape exits from the storage bin, and the data is played back to the CEU. The tape continues to the record head for the recording of new data.

The CLR operates in one of two modes: record mode and playback mode. In record mode, the application of ac power causes the tape transport mechanism to operate. At that time, a write-trans flip-flop indicates to the CEU that the CLR is ready to accept data. At the presence of an inhibit logic-one signal from the CEU, the CLR will accept signals on all input lines. If the inhibit signal changes to a logic-zero, the CLR will not respond to signals on the input lines.

The write-data transmission from the CEU consists of 17 write strobe pulses and a serial 9-bit write data coincident with the last 9 write strobe pulses. In the 9-bit write data, the first 8 bits are data bits and the 9th bit is a parity bit.

The leading edge of the first write strobe pulse resets the write-trans flip-flop terminating the CLR-ready signal, starting a 20-bit counter, and gating the write strobe pulses to a 9-bit shift register. The last 9 write strobe R pulses shift the write data into the 9-bit shift register. The 20th count of the 20-bit counter sets the write-trans flip-flop which gates 3kHz clock pulses to the 9-bit shift register. The data in the 9-bit shift register is unloaded bit by bit into a biphase encoder in synchronism with the clock pulses.

The biphase encoder accepts data from the 9-bit shift register and clock pulses, and generates a biphase signal for recording to the record head. This process is continuous for recording new data.

In playback mode, the 10th count of a 10-bit counter sets a read-trans flip-flop; the flip-flop sends an interrogate signal to the CEU to indicate that the CLR can transmit data. When the CEU is ready to accept data, it sends 17 read strobe pulses to the CLR.

The playback head reads the biphase information on the tape and applies it bit by bit to a biphase decoder. The biphase decoder translates the biphase signal into 9 data bits and clock signals. The decoded clock signals are sent to a 10-bit counter, and the 9 data bits are loaded into the word-identification shift register. The register serially stores the data at the 3 kHz clock rate.

The 10-bit counter tallies the decoded clock pulses. On the 9th count, the shift register is enabled and it accepts data in parallel from the word-identification shift register. At the same time, the register gates a word-frame-trans flip-flop to reset the 10-bit counter; the 10th count of the counter resets the word-frame-trans flip-flop whose output enables the 10-bit counter.

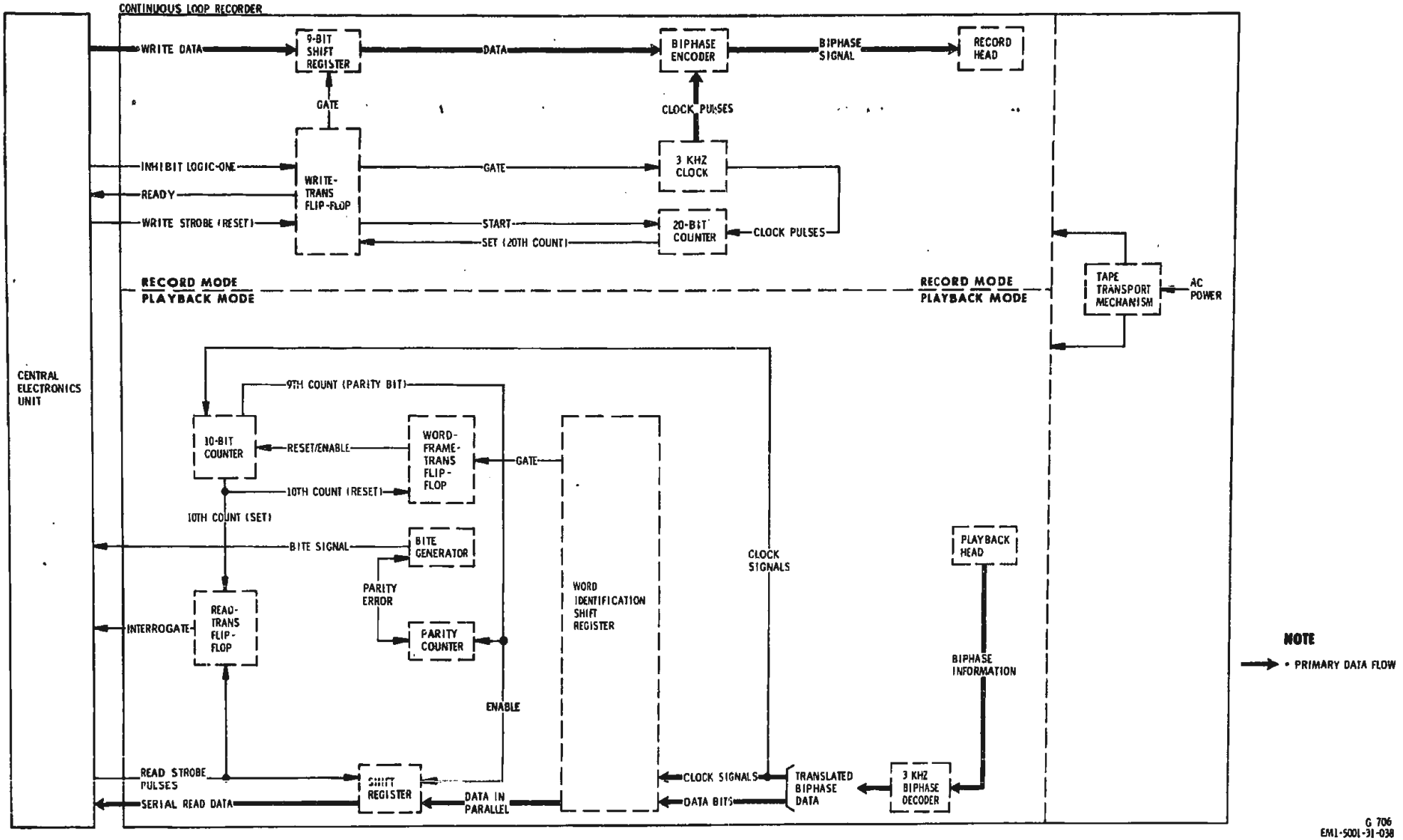
On the 9th count (of the 10-bit counter), which corresponds to the parity bit, a signal also is sent to a parity counter to check for odd parity. If a parity error is detected, an error signal is generated to energize a BITE generator. The output of the BITE generator informs the CEU that the CLR is not operable.

8. Thermocouple Reference Junction (TRJ)

A. Description and Operation

R The TRJs (Ref. Fig. 13) are installed in the FESC, zone 112;
R in the MESC zone 137; and in the aft electronics equipment area (AEEA), zone 164. Each TRJ consists of a temperature-sensitive bridge circuit and a thermocouple cold junction contained in an epoxy-filled, glass-fiber enclosure. The TRJ contains six terminal lug connectors: Lugs No. 1 (positive) and 2 (negative) accept excitation voltages from an associated DAU. Lugs No. 5 and 6 accept input signals from thermocouple probes inserted in high-temperature areas of the aircraft. Lugs No. 3 (positive) and 4 (negative) are the compensated outputs applied to an associated DAU for monitoring.

The 5(±0.005)-volt dc excitation voltage is applied across the temperature-sensitive bridge circuit. The bridge circuit maintains the thermocouple cold junction, electrically, at an apparent reference temperature of zero degrees centigrade. Any ambient temperature difference



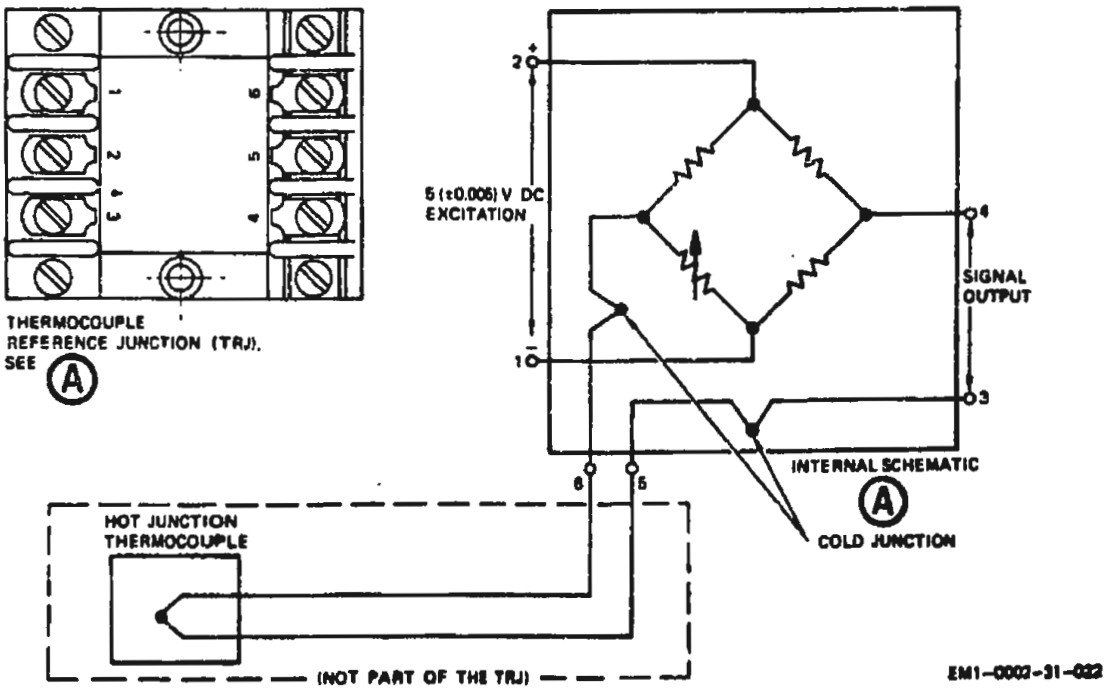
R CLR Functional Block Diagram
R Figure 12

above or below zero degrees centigrade is sensed by the bridge circuit. In response, the bridge circuit produces an offset voltage to compensate for the thermal voltage change at the cold junction resulting from a change in the ambient temperature. The offset voltage is added to or subtracted from the voltage difference between the hot junction thermocouple (high-temperature source) and the cold junction thermocouple (low-temperature source).

9. Triaxial Accelerometer

A. Description

Longitudinal, lateral, and vertical acceleration forces are sensed, signal-conditioned, and transmitted to the AIDS for processing and recording in the DFDR. The unit is mounted in a support bracket attached to the transverse floor beam at FS1243 in the hydraulic service center, zone 147. Basic components of the triaxial accelerometer (Ref. Fig. 14) are three identical acceleration sensing mechanisms physically oriented to sense acceleration in one of the three principal axes, a common biasing circuit, and radio noise filtration circuitry. The components and their subassembly elements are housed in a case that is electrically interfaced with the DFDR by a single electrical connector. The primary



R Thermocouple Reference Junction
R Figure 13

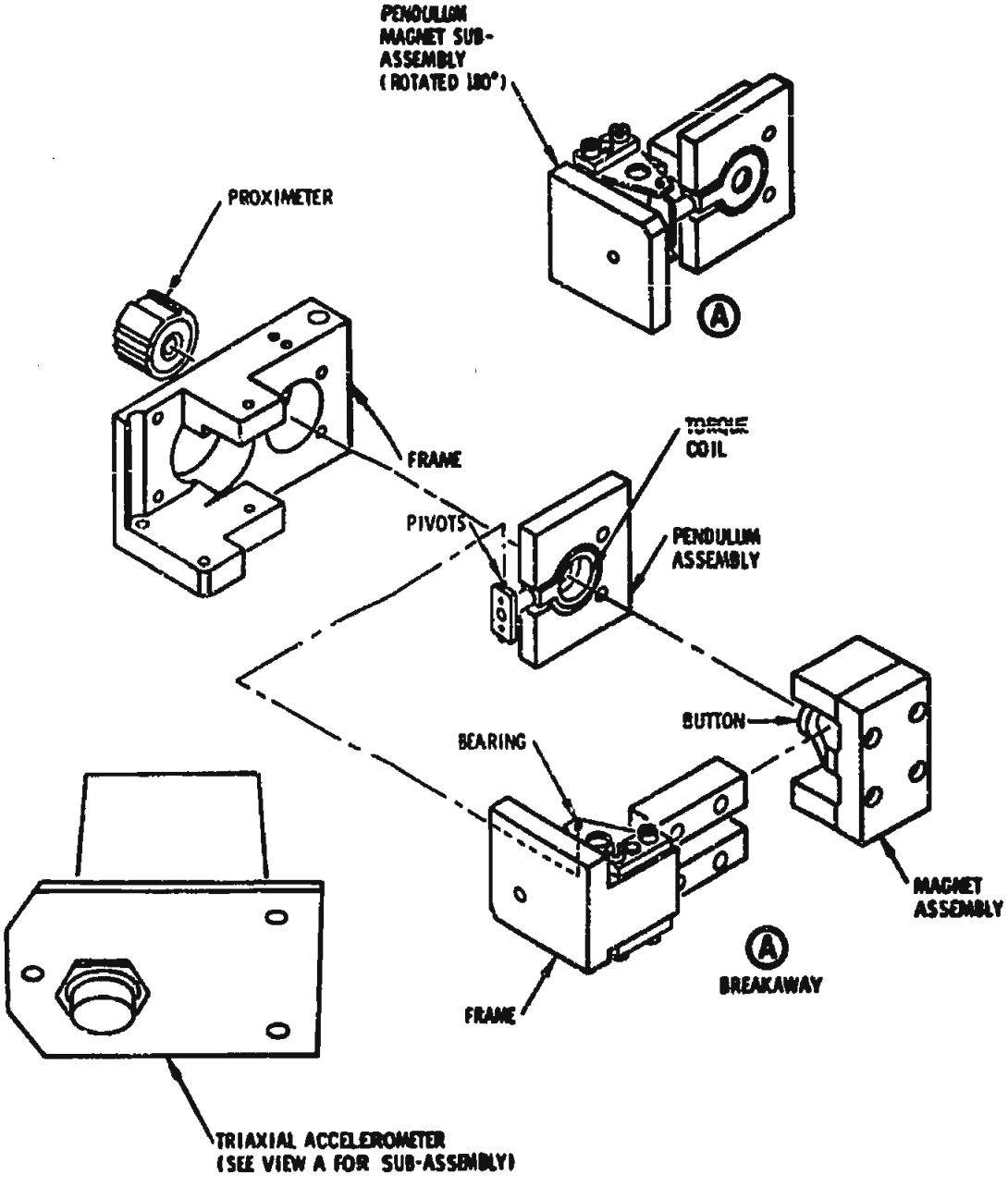
subassembly elements in each accelerometer are a frame assembly, pendulum assembly, magnet, pendulum suspension system, a proximeter coil, and a servo amplifier consisting of an output load resistor and rebalance and output null circuitry.

The frame assembly is a two-part, machined, interconnected unit providing the primary means of supporting the magnet. The spacer blocks provide critical orientation of the components, bearings of the suspension system, and the proximeter coil.

The pendulum assembly is the basic acceleration sensing mechanism. It consists of a rectangular end-piece containing two jeweled pivots and a torque coil seismic mass connected together by a tube-shaped arm. The assembly, supported by the pivots in two preloaded bearings in the frame, is free to rotate in a plane perpendicular to the pivot axis. When the accelerometer is assembled, the torque coil is positioned in the cavity of a rectangular magnetic circuit spacer block. The magnet is bolted to one part of the frame assembly flush against the spacer block. In this position, a button-shaped portion of the magnet is surrounded by the torque coil. The coil is then in a position to be acted upon by the strongest portion of the magnetic field. The proximeter coil is retained by screws in the other part of the frame assembly in a position that locates the flat end of the coil in close proximity to the suspended torque coil. The position is critical in detecting displacement of the torque coil.

B. Operation

Functionally, each accelerometer (Ref. Fig. 15) is a force-balanced, closed-loop, servoed-pendulum unit. The servo concept balances the input forces of acceleration with an equal and opposite electronically generated restoring force. The measurement of this restoring force provides the desired output signal in terms of volts per applied acceleration. When the accelerometer mechanism is accelerated along the sensitive axis, a minute displacement is sensed by a proximeter coil functioning as a motion detector which generates an output error signal. The amplitude of the error signal varies in direct proportion to the displacement magnitude and is applied as an input to the servoamplifier. The output of the servoamplifier is applied to the torque coil as a coil-position restoring force. Any change in input acceleration produces a corresponding change in restoring force; the accelerometer pendulum is thereby maintained in a fixed position-captured mode. A voltage drop produced across a resistor in the servo output loop is



HH 8748
M1-0100-31-100

R R Triaxial Accelerometer
Figure 14

R R EFFECTIVITY: ALL

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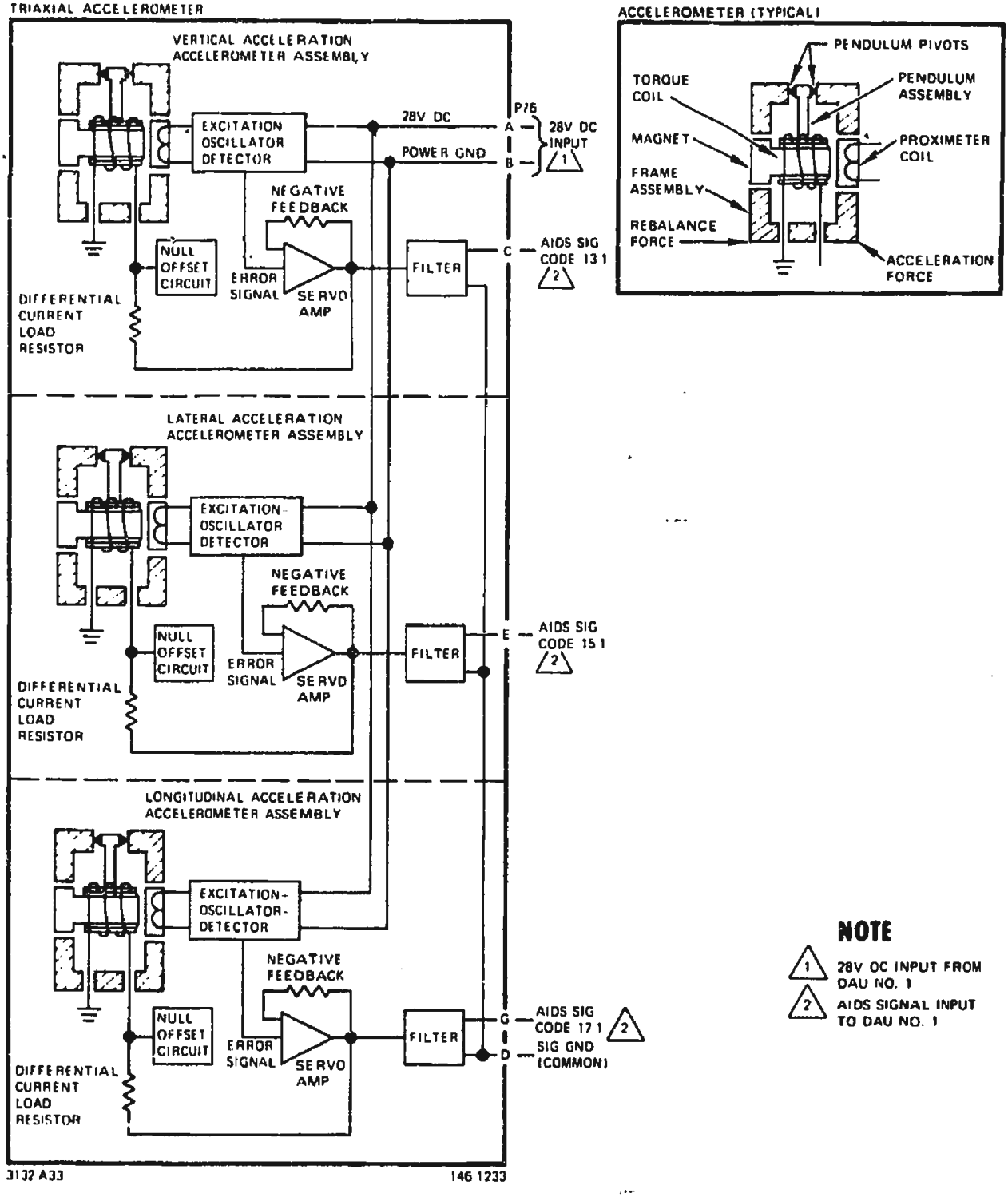
an accurate electrical analog of the input acceleration force.

An all solid-state null offset circuit is incorporated into the output circuit of each accelerometer to raise the null output signal to required levels.



NOTE

1. 28V DC INPUT FROM DAU NO. 1
2. AIDS SIGNAL INPUT TO DAU NO. 1

HA 2884
EM1-5000-31-698

R Triaxial Accelerometer Simplified Schematic
R Figure 15

AIRCRAFT INTEGRATED DATA SYSTEM - FAULT ISOLATION

1. General

Reference data and fault isolation procedures for troubleshooting Aircraft Integrated Data system faults are included in this section of the manual. An Aircraft Integrated Data system malfunction detected by the flight crew is normally entered in the aircraft flight log book and reported to maintenance personnel by a FIRM fault code number. This number and the flight log book write-up can be found in the Chapter 31 Fault Code Index. The index specifies the maintenance manual section, fault isolation diagram figure number and, where appropriate, a block number indicating the diagram entry point containing the fault isolation procedure. When no block number is specified, the diagram entry point is block 1.

Prerequisites listed at the top of each diagram identify mandatory preliminary steps and circuit breakers that must be closed before initiating any fault isolation step.

Schematic diagrams, identified by a SCHEM number, supplement fault isolation procedures as maintenance aids. The schematics show the basic system circuitry necessary for troubleshooting and include cross-reference indexes to the wiring diagram manual pages required for checking component interconnect wiring.

2. Equipment and Materials

Model 563 AIDS/DFDR Portable tester

3. Referenced Procedures

31-32-04 Incremental Recorder - Removal and Installation

31-32-05 Continuous Loop Recorder - Removal and Installation

4. Fault Isolation/Identification

Troubleshooting the Aircraft Integrated Data System (AIDS) requires no more than replacement of the affected AIDS system line replaceable unit (LRU)(Ref. SCHEM 1). However, if extensive troubleshooting is indicated, the technician should refer to the appropriate AIDS signal monitoring schematic. The schematics are designed to provide the technician with a troubleshooting document that contains adequate information for isolating and confirming a suspected fault.

AIDS signal monitoring schematics are divided into three groups according to the data acquisition unit (DAU) that receives and conditions each signal. Section 31-32-10 contains the AIDS schematics for all signals serviced by DAU No. 1, 31-32-11 DAU No. 2, and 31-32-12 DAU No. 3. In the event one schematic contains AIDS signal groups serviced by two DAUs, the AIDS schematic appears in each of the affected sections.

R Table 103 is a tabulation of AIDS signal codes in numerical order. Each signal is referenced to a section(s) and the applicable figure number containing the signal circuitry and
R related data. Table 102 lists each schematic by title in the order that they appear in Sections 31-32-10 through 31-32-12.

The AIDS system incorporates automatic self-test and manual self-test features capable of isolating a fault to any LRU in the AIDS system (and flight data recorder) except the AIDS control panel. Checkout of the control panel is limited to lamp test.

The automatic self-test routine stored in the central electronics unit (CEU) computer is automatically initiated at the end of each data scan. Automatic self-test is completely independent and requires no external test equipment or manual operations. Faults occurring during the automatic self-test mode are recorded on the incremental recorder, but will not cause the fault indicators installed on the front panel of the CEU to illuminate.

Manual self-test mode is initiated by depressing and holding the SELF TEST pushbutton installed on the front panel of the CEU. A normal system under test results in a flashing blue SELF TEST light with all others remaining off. The manual self-test routine continues until the SELF TEST pushbutton is released. If a fault is detected in the AIDS system (or flight data recorder) during manual self-test, the appropriate fault indicator light on the front panel of the CEU will illuminate. Existing faults or faults occurring after the SELF TEST pushbutton is released are recorded during the subsequent automatic self-test routines.

The Model 563 AIDS/DFDR Portable Tester (Ref. Fig. 103) provides a digital display of the selected parameter that is sensed and recorded by the AIDS system. A 15-foot cable wired internally to the tester terminates in a quick-disconnect connector (J1) which is compatible to the flight data recorder test plug in the aft electronic equipment area and plug P1 on T-cable W-1 used for AIDS testing. The W-1 cable terminates in two rectangular connectors, J1 (LOOP/INC) and P2 (CEU). The J1 (LOOP/INC) connector is plugged into either the continuous loop recorder or the incremental recorder. Connector P2 (CEU) completes the test circuit when plugged into the associated recorder rack

R connector. Note that either AIDS recorder must be removed from
R the rack but the digital flight data recorder remains installed.
R Refer to Sections 31-32-04 and 31-32-05 for the incremental and
R continuous loop recorders removal and installation procedures.

R Using the No. 1 fuel quantity AIDS signal as a typical digital
R readout example, the operator would dial address 040 on the
R three PARAMETER SELECT thumbwheel switches on the front panel of
R the tester. The observed digital readout is then compared with
R the corresponding value listed under PARAMETER (LBS X 10^2)
R column in the signal characteristics table on the appropriate
R monitoring schematic for AIDS signal code 9-1. A digital
R readout of 800 would correspond to a fuel quantity of 43,200
R pounds. A table of signal characteristics is included on each
R AIDS signal monitoring schematic.

R The three positions on the tester MODE SELECTOR switch utilized
R for AIDS parameter readouts are LOOP OUT, LOOP IN, and INC. The
R two LOOP positions refer to the continuous loop recorder and INC
R refers to the incremental recorder. With LOOP OUT selected and
R W-1 cable installed between the continuous loop recorder and the
R rack connector, the digital data displayed on the tester
R consists of the most recent 5-minute recording period. The LOOP
R IN position permits data to be displayed that is sampled at the
R input to the recorder. The P (performance) light on the tester
R should flash on and off every 3.6 seconds with either LOOP OUT
R or LOOP IN selected unless maintenance data recording has been
R commanded by depressing the MANUAL RECORD pushbutton on the AIDS
R control unit. Maintenance data recording is indicated by the M
R light flashing on and off for each data scan occurring during
R the 5-minute maintenance data recording period. Failure of the
R P or M lights to function as previously described is indicative
R of abnormal test operation.

R Installing the W-1 cable between the incremental recorder and
R the rack connector and selecting the INC position on the MODE
R SELECT switch will cause the P or M lights to function as
R previously described for the LOOP OUT and LOOP IN positions.
R Data inputs to the incremental recorder are controlled
R automatically or by manual command at the AIDS control panel.
R Automatic recording is accomplished when recorder commands and
R current data from all monitored parameters are provided to the
R incremental recorder at predetermined intervals that occur from
R engine startup to engine shutdown. Manual recording of selected
R stored data in the continuous loop recorder is provided to the
R incremental recorder using the system selector switch and MANUAL
R RECORD pushbutton on the AIDS control panel.

AIDS System Fault Isolation Diagrams and Schematics
Table 102

FIGURE	TITLE	SECTION
101	Component Location Index	31-32-00
102	Component Locator Diagram	31-32-00
103	Model 563A IDS/DFDR Portable Tester	31-32-00
SCHEM 1	AIDS System Schematic	31-32-00
SCHEM 1	Pack Airflow Monitoring Schematic	31-32-10
SCHEM 2	Pitch Computer Cruise (Altitude Hold) Monitoring Schematic	31-32-10
SCHEM 3	Angle of Attack Pitch Axis Local Air Flow Monitoring Schematic	31-32-10
SCHEM 4	HF and VHF Microphone Monitoring Schematic	31-32-10
SCHEM 5	Control Wheel (Roll) and Rudder Pedal Position Monitoring Schematic	31-32-10
SCHEM 6	Inboard and Outboard Aileron Surface Position Monitoring Schematic	31-32-10
SCHEM 7	Rudder Surface Position Monitoring Schematic	31-32-10
SCHEM 8	Control Column Position and Trim Position (Pitch) Monitoring Schematic	31-32-10
SCHEM 9	Horizontal Stabilizer Position Monitoring Schematic	31-32-10
SCHEM 10	Trailing Edge Flap Position Monitoring Schematic	31-32-10
SCHEM 11	Spoiler Position Monitoring Schematic	31-32-10
SCHEM 12	Right Wing Slat (All) Position Monitoring Schematic	31-32-10
SCHEM 13	Engine Start/Shutdown Monitoring Schematic	31-32-10
SCHEM 14	Hydraulic Systems Pressure Monitoring Schematic	31-32-10

AIDS System Fault Isolation Diagrams and Schematics (Cont)
Table 102

FIGURE	TITLE	SECTION
SCHEM 15	Engine Low and High Pressure Anti-Ice Switch Monitoring Schematic	31-32-10
SCHEM 16	Triaxial Accelerometer Monitoring Schematic	31-32-10
SCHEM 17	Hard Landing, Gross Weight, and CG Monitoring Schematic	31-32-10
SCHEM 18	Left Wing Slats Proximity Switch Sensor Monitoring Schematic	31-32-10
SCHEM 19	Right Wing Slats Proximity Switch Sensor Monitoring Schematic	31-32-10
SCHEM 20	Landing Gear In-Transit Time and Approach - All Landing Gears Position Monitoring Schematic	31-32-10
SCHEM 21	Approach - Air/Ground Sensor Monitoring Schematic	31-32-10
SCHEM 22	Engine Thrust Reverser In-Transit and Deployed Monitoring Schematic	31-32-10
SCHEM 23	ADC Course and Fine Pressure Altitude Monitoring Schematic	31-32-10
SCHEM 24	ADC Static Air Temperature Monitoring Schematic	31-32-10
SCHEM 25	ADC Computed Airspeed and Mach Number Monitoring Schematic	31-32-10
SCHEM 26	ADC True Airspeed Monitoring Schematic	31-32-10
SCHEM 27	ADC Altitude, SAT/TAS, Airspeed, and Mach Number Monitoring Schematic	31-32-10
SCHEM 28	Vertical Gyro No. 1 Pitch and Roll Attitude Monitoring Schematic	31-32-10
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SCHEM 30	Marker Beacon Receiver No. 1 Middle Marker Monitoring Schematic	31-32-10

AIDS System Fault Isolation Diagrams and Schematics (Cont)
Table 102

FIGURE	TITLE	SECTION
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SCHEM 32	Engine Fuel Flow Monitoring Schematic	31-32-10
SCHEM 33	Left Throttle Switch Position - Start of Takeoff Roll Monitoring Schematic	31-32-10
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SCHEM 36	Engine IP Shaft Speed (N2) Monitoring Schematic	31-32-10
SCHEM 37	Engine HP Shaft Speed (N3) Monitoring Schematic	31-32-10
SCHEM 38	Engine Turbine Gas Temperature (TGT) Monitoring Schematic	31-32-10
SCHEM 39	Engine Oil Pressure Monitoring Schematic	31-32-10
SCHEM 40	Engine Oil Temperature Monitoring Schematic	31-32-10
SCHEM 41	Engine Oil Quantity Monitoring Schematic	31-32-10
SCHEM 1	MESC, Mid, and Aft Cargo Compt Exhaust Fan Bearing Temp Monitoring Schematic	31-32-11
SCHEM 2	Hydraulic Pumps Case Drain Temp Monitoring Schematic	31-32-11
SCHEM 3	Hydraulic Pumps QFM Monitoring Schematic	31-32-11
SCHEM 4	Direct Lift Control and Nose Gear Steering Servo Valve Return QFM Monitoring Schematic	31-32-11
SCHEM 5	Left Inboard and Outboard Aileron QFM Monitoring Schematic	31-32-11
SCHEM 6	Right Inboard and Outboard Aileron QFM Monitoring Schematic	31-32-11
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AIDS System Fault Isolation Diagrams and Schematics (Cont)
Table 102

FIGURE	TITLE	SECTION
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SCHEM 9	Stabilizer and Rudder QFM Monitoring Schematic	31-32-11
SCHEM 10	Cabin Altitude Absolute Pressure Monitoring Schematic	32-21-11
SCHEM 11	Normal and Alternate Brake Metered Hydraulic Pressure Monitoring Schematic	31-32-11
SCHEM 12	Landing Gear In-Transit Time and Approach - All Landing Gears Position Monitoring Schematic	31-32-11
SCHEM 13	Engine Splitter Temperature Monitoring Schematic	31-32-11
SCHEM 14	Engine Throttle Lever Angle Position Monitoring Schematic	31-32-11
SCHEM 15	Engine Fuel Differential Pressure and LP, IP, and HP Compressor Delivery Pressure Monitoring Schematic	31-32-11
SCHEM 16	Engine IP and HP Compressor Delivery Temperature Monitoring Schematic	31-32-11
SCHEM 17	Engine IP Turbine Front and Rear Cooling Air Temperature Monitoring Schematic	31-32-11
SCHEM 18	Engine Vibration Monitoring Schematic	31-32-11
SCHEM 1	FESC, Galley, and Forward Cargo Compt Exhaust Fan Bearing Temp Monitoring Schematic	31-32-12
SCHEM 2	Safety Valve No. 1 (Fwd) and No. 2 (Aft) Position Monitoring Schematic	31-32-12
SCHEM 3	Pack No. 2 and No. 3 Hot Manifold Temp Control Valve Position Monitoring Schematic	31-32-12
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AIDS System Fault Isolation Diagrams and Schematics (Cont)
Table 102

FIGURE	TITLE	SECTION
SCHEM 5	Pack Water Separator Pressure and Mixing Plenum Chamber Pressure Monitoring	31-32-12
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SCHEM 7	Zone 2 (Forward Cabin) Trim Actuator Position Monitoring Schematic	31-32-12
SCHEM 8	Zone 3 (Mid Cabin) Trim Actuator Position Monitoring Schematic	31-32-12
SCHEM 9	Zone 4 (Aft Cabin) Trim Actuator Position Monitoring Schematic	31-32-12
SCHEM 10	Zone 5 (Galley) Trim Actuator Position Monitoring Schematic	31-32-12
SCHEM 11	Pack Air Cycle Machine Discharge Temp Monitoring Schematic	31-32-12
SCHEM 12	Zone Supply Duct Temp Monitoring Schematic	31-32-12
SCHEM 13	Zone Temperature Monitoring Schematic	31-32-12
SCHEM 14	Forward, Mid, and Aft Cargo Compt Temp Sensor Monitoring Schematic	31-32-12
SCHEM 15	Air Cycle Machine Turbine Inlet Temp Monitoring Schematic	31-32-12
SCHEM 16	Engine Bleed Air Supply Duct Temp Monitoring Schematic	31-32-12
SCHEM 17	Fuel Tank Quantity Monitoring Schematic	31-32-12
SCHEM 18	Hydraulic Systems Pressure Monitoring Schematic	31-32-12
SCHEM 19	Direct Lift Control and Nose Gear Steering Servo Valve Return QFM Monitoring Schematic	31-32-12
SCHEM 20	Engine Low and High Pressure Anti-Ice Switch Monitoring Schematic	31-32-12
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AIDS System Fault Isolation Diagrams and Schematics (Cont)
Table 102

FIGURE	TITLE	SECTION
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SCHEM 23	ADC Static Air Temperature Monitoring Schematic	31-32-12
SCHEM 24	ADC Computed Airspeed and Mach Number Monitoring Schematic	31-32-12
SCHEM 25	ADC True Airspeed Monitoring Schematic	31-32-12
SCHEM 26	ADC Altitude, SAT/TAS, Airspeed, and Mach Number Monitoring Schematic	31-32-12
SCHEM 27	ILS Receivers Glideslope and Localizer Deviation Monitoring Schematic	31-32-12
SCHEM 28	VOR Localizer Tuned Monitoring Schematic	31-32-12
SCHEM 29	Engine High Pressure Shutoff Valve Monitoring Schematic	31-32-12
SCHEM 30	APU Duct Isolation Valve Position Monitoring Schematic	31-32-12
SCHEM 31	APU Turbine Gas Temperature (TGT) and RPM Monitoring Schematic	31-32-12
SCHEM 32	EPR Indicator - TAT and TAT Flag Monitoring Schematic	31-32-12

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AIDS Signal Code Schematic ReferenceTable 103

SIGNAL CODE	CHAPTER/ SECTION/ SUBJECT	SCHEM NO.	SIGNAL CODE	CHAPTER/ SECTION/ SUBJECT	SCHEM NO.
1-1*	31-32-10	23	17-1	31-32-10	16
	31-32-12	23	18-1	31-32-10	1
1-2*	31-32-10	23	18-2	31-32-10	1
	31-32-12	23	18-3	31-32-10	1
1-3	31-32-10	23	21-1	31-32-10	35
	31-32-12	23	21-2	31-32-10	35
1-4	31-32-10	23	21-3	31-32-10	35
	31-32-12	23	22-1	31-32-10	36
2-1	31-32-10	24	22-2	31-32-10	36
	31-32-12	24	22-3	31-32-10	36
2-2	31-32-10	24	23-1	31-32-10	37
	31-32-12	24	23-2	31-32-10	37
3-1	31-32-10	25	23-3	31-32-10	37
	31-32-12	25	24-1	31-32-10	38
3-2	31-32-10	25	24-2	31-32-10	38
	31-32-12	25	24-3	31-32-10	38
4-1	31-32-10	25	26-1	31-32-10	32
	31-32-12	25	26-2	31-32-10	32
4-2	31-32-10	25	26-3	31-32-10	32
	31-32-12	25	27-1	31-32-10	40
5-1	31-32-10	17	27-2	31-32-10	40
5-3	31-32-10	17	27-3	31-32-10	40
5-5	31-32-10	17	28-1	31-32-10	39
6-1	31-32-10	17	28-2	31-32-10	39
7-1	31-32-10	17	28-3	31-32-10	39
8-1	31-32-10	26	29-1	31-32-10	41
	31-32-12	26	29-2	31-32-10	41
8-2	31-32-10	26	29-3	31-32-10	41
	31-32-12	26	30-1A	31-32-11	18(1)
9-1	31-32-12	18	30-1B	31-32-11	18(1)
9-2	31-32-12	18	30-1C	31-32-11	18(1)
9-3	31-32-12	18	30-2A	31-32-11	18(1)
9-4	31-32-12	18	30-2B	31-32-11	18(1)
11-1	31-32-10	6	30-2C	31-32-11	18(1)
11-2	31-32-10	6	30-3A	31-32-11	18(2)
11-3	31-32-10	6	30-3B	31-32-11	18(2)
11-4	31-32-10	6	30-3C	31-32-11	18(2)
11-5	31-32-10	11	30-4A	31-32-11	18(2)
11-6	31-32-10	11	30-4B	31-32-11	18(2)
11-7	31-32-10	11	30-4C	31-32-11	18(2)
11-8	31-32-10	11	30-5A	31-32-11	18(3)
13-1*	31-32-10	16	30-5B	31-32-11	18(3)
15-1*	31-32-10	16	30-5C	31-32-11	18(3)

AIDS Signal Code (Cont)
Schematic Reference
Table 103

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SIGNAL CODE	CHAPTER/ SECTION/ SUBJECT	SCHEM NO.	SIGNAL CODE	CHAPTER/ SECTION/ SUBJECT	SCHEM NO.
30-6A	31-32-11	18(3)	42-1*	31-32-10	3
30-6B	31-32-11	18(3)	42-2	31-32-10	3
30-6C	31-32-11	18(3)	46-1	31-32-10	9
31-1A	31-32-10	15	47-1*	31-32-10	10
	31-32-12	21	47-2*	31-32-10	10
31-1B	31-32-10	15	51-1*	31-32-10	5
	31-32-12	21	51-2*	31-32-10	5
31-2A	31-32-10	15	52-1	31-32-10	7
	31-32-12	21	53-1	31-32-12	5
31-2B	31-32-10	15	53-2	31-32-12	5
	31-32-12	21	53-3	31-32-12	5
31-3A	31-32-10	15	54-1	31-32-10	31
	31-32-12	21	54-2	31-32-10	31
31-3B	31-32-10	15	54-3	31-32-10	31
	31-32-12	21	55-1	31-32-12	5
32-1	31-32-11	14	56-1	31-32-12	12
32-2	31-32-11	14	56-2	31-32-12	12
32-3	31-32-11	14	56-3	31-32-12	12
36-1*	31-32-10	22	57-1	31-32-12	30(1)
36-2*	31-32-10	22	57-2	31-32-12	30(2)
36-3*	31-32-10	22	57-3	31-32-12	30(3)
37-1	31-32-11	15(1)	57-7	31-32-12	2
37-2	31-32-11	15(2)	57-8	31-32-12	2
37-3	31-32-11	15(3)	57-9	31-32-12	7
38-1	31-32-10	27	57-10	31-32-12	8
	31-32-12	27	57-11	31-32-12	9
38-2	31-32-10	27	57-12	31-32-12	10
	31-32-12	27	57-13	31-32-12	11
38-3	31-32-10	27	57-19	31-32-12	3
	31-32-12	27	57-20	31-32-12	3
38-4	31-32-10	27	57-25	31-32-12	31
	31-32-12	27	57-26	31-32-12	4
38-6	31-32-10	27	58-1	31-32-12	13
	31-32-12	27	58-2	31-32-12	13
38-7	31-32-10	27	58-3	31-32-12	13
	31-32-12	27	58-4	31-32-12	13
38-8	31-32-10	27	58-5	31-32-12	13
	31-32-12	27	59-1	31-32-12	14
38-9	31-32-10	27	59-2	31-32-12	14
	31-32-12	27	59-3	31-32-12	14
39-1*	31-32-10	28	59-4	31-32-12	14
40-1*	31-32-10	28	59-5	31-32-12	14
41-1*	31-32-10	29	60-1	31-32-11	10

AIDS Signal Code (Cont)
Schematic Reference
Table 103

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SIGNAL CODE	CHAPTER/ SECTION/ SUBJECT	SCHEM NO.	SIGNAL CODE	CHAPTER/ SECTION/ SUBJECT	SCHEM NO.
62-1	31-32-11	5	66-1	31-32-11	3
62-2	31-32-11	5	66-2	31-32-11	3
62-3	31-32-11	5	66-3	31-32-11	3
62-4	31-32-11	5	66-4	31-32-11	3
62-5	31-32-11	5	66-5	31-32-11	3
62-6	31-32-11	7	66-6	31-32-11	3
62-7	31-32-11	7	67-1	31-32-11	11
62-8	31-32-11	7	67-2	31-32-11	11
62-9	31-32-11	7	67-3	31-32-11	11
62-10	31-32-11	7	67-4	31-32-11	11
62-11	31-32-11	7	68-1	31-32-10	20
62-12	31-32-11	6		31-32-11	12
62-13	31-32-11	6	68-2	31-32-10	20
62-14	31-32-11	6		31-32-11	12
62-15	31-32-11	6	68-3	31-32-10	20
62-16	31-32-11	6		31-32-11	12
62-17	31-32-11	8	72-1	31-32-12	1
62-18	31-32-11	8	72-2	31-32-11	1
62-19	31-32-11	8	72-3	31-32-12	1
62-20	31-32-11	8	72-4	31-32-12	1
62-21	31-32-11	8	72-5	31-32-11	1
62-22	31-32-11	8	72-6	31-32-11	1
62-23	31-32-11	9	74-1	31-32-12	32
62-24	31-32-11	9	75-1	31-32-12	32
62-25	31-32-11	9	76-1	31-32-11	15(1)
62-26	31-32-11	9	76-2	31-32-11	15(2)
62-27	31-32-11	9	76-3	31-32-11	15(3)
62-28	31-32-11	9	77-1	31-32-11	15(1)
62-29	31-32-11	9	77-2	31-32-11	15(2)
62-30	31-32-11	4	77-3	31-32-11	15(3)
	31-32-12	20	78-1	31-32-11	15(1)
62-31	31-32-11	4	78-2	31-32-11	15(2)
	31-32-12	20	78-3	31-32-11	15(3)
62-32	31-32-11	4	79-1	31-32-11	16
	31-32-12	20	79-2	31-32-11	16
64-1	31-32-10	14	79-3	31-32-11	16
	31-32-12	19	80-1	31-32-11	16
64-2	31-32-10	14	80-2	31-32-11	16
	31-32-12	19	80-3	31-32-11	16
64-3	31-32-10	14	85-1	31-32-11	17
	31-32-12	19	85-2	31-32-11	17
64-4	31-32-10	14	85-5	31-32-11	17

AIDS Signal Code (Cont)
Schematic Reference
Table 103

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SIGNAL CODE	CHAPTER/ SECTION/ SUBJECT	SCHEM NO.	SIGNAL CODE	CHAPTER/ SECTION/ SUBJECT	SCHEM NO.
	31-32-12	19	85-6	31-32-11	17
85-9	31-32-11	17	117-1	31-32-12	22
85-10	31-32-11	17	117-2	31-32-12	22
96-1	31-32-10	18	122-1*	31-32-10	22
96-2	31-32-10	18	122-2*	31-32-10	22
96-3	31-32-10	18	122-3*	31-32-10	22
96-4	31-32-10	18	129-1	31-32-11	2
96-5	31-32-10	18	129-2	31-32-11	2
96-6	31-32-10	18	129-3	31-32-11	2
96-7	31-32-10	18	129-4	31-32-11	2
96-8	31-32-10	19	129-5	31-32-11	2
96-9	31-32-10	19	129-6	31-32-11	2
96-10	31-32-10	19	152-1	31-32-10	30
96-11	31-32-10	19	160-1*	31-32-10	4
96-12	31-32-10	19	160-2*	31-32-10	4
96-13	31-32-10	19	160-3*	31-32-10	4
96-14	31-32-10	19	160-4*	31-32-10	4
96-15*	31-32-10	12	160-5*	31-32-10	4
101-1	31-32-12	17	161-1	31-32-11	13
101-2	31-32-12	17	161-2	31-32-11	13
101-3	31-32-12	17	161-3	31-32-11	13
103-1	31-32-12	16	163-1	31-32-12	29
103-2	31-32-12	16	163-2	31-32-12	29
103-3	31-32-12	16	164-1*	31-32-10	34
104-1	31-32-12	6	164-2*	31-32-10	34
104-2	31-32-12	6	164-3*	31-32-10	34
104-3	31-32-12	6	165-1*	31-32-10	34
105-1	31-32-12	15	165-2*	31-32-10	34
105-2	31-32-12	15	165-3*	31-32-10	34
105-3	31-32-12	15	167-1	31-32-12	33
110-1*	31-32-10	8	167-2	31-32-12	33
110-2*	31-32-10	8	Q1/Q7	31-32-10	13
111-1*	31-32-10	8	Q2	31-32-10	33
111-2*	31-32-10	8	Q4-1	31-32-10	2
112-1*	31-32-10	5	Q4-2	31-32-10	2
114-1	31-32-12	28	Q6-1	31-32-10	20
114-2	31-32-12	28		31-32-11	12
115-1	31-32-12	28	Q6-2	31-32-10	21
115-2	31-32-12	28			

*FAA mandatory parameters for digital flight data recorder

PARAMETERS			INPUT SIGNALS										
			LAC CODE	AIDS 563 TESTER CODE	DFDR 563 TESTER CODE	DAU NO.	SIGNAL TYPE	DAU CHANNEL NO.	INPUT SIGNAL RANGE	OUTPUT BCD RANGE	AIDS EXCIT-REF. NO.	SECTION	SCHEM
RECORDING MODE (SCAN TYPE) X'0'	-0,1,2,....8	SCAT		001		CEU	DIGITAL			0-8			
DATA ID - MODE (FLIGHT)	(1)	DAMO		002		FDEP	DIGITAL			0-9			
DATA ID - SYSTEM	(1)	DASH		003		FDEP	DIGITAL			0-9			
DATA ID - SUBSYSTEM	(1)	DASS		004		FDEP	DIGITAL			0-9			
FLIGHT NUMBER	(5)	FLTN		005-009	002-003	FDEP	DIGITAL			0-99999			
FLIGHT LEG	(1)	FLTL		010	003	FDEP	DIGITAL			C-9			
MONTH	(2)	DMTH		011-012	004	FDEP	DIGITAL			00-19			
DAY	(2)	DDAY		013-014	004-005	FDEP	DIGITAL			00-39			
HOUR	(2)	THRS		015-016	005	CEU	DIGITAL			00-47			
MINUTE	(2)	TMIN		017-018	006	CEU	DIGITAL			00-59			
SECOND	(2)	TSEC		019-020	006-007	CEU	DIGITAL			00-59			
GROSS WEIGHT (TKO/VREF)	(4)	TKGW		021-024		FDEP	DIGITAL			0-9999			
AIRCRAFT ID NUMBER	(5)	ACID		025-029	007	FDEP	DIGITAL			110XX			
PILOT ID NUMBER	(6)	PLID		030-035		FDEP	DIGITAL			0-ALL-9			
FORMAT ID NUMBER	(3)	FMID		036-038		CEU	DIGITAL			202			
START OF DATA CHARACTER	X'CO'	SODC		039		CEU	DIGITAL			HEX CO			
1. TOTAL SCAN OUTPUT COUNTER (INCREMENTAL) MSDS		SCI1		040		CEU	DIGITAL			000-999			
2. TOTAL SCAN OUTPUT COUNTER (INCREMENTAL) LSDS		SCI2		041		CEU	DIGITAL			000-999			
3. PERFORMANCE, MAINTENANCE-RECORDING FLAGS		PMRF		042		CEU	DIGITAL			000-003			
BIT													
1.													
2.													
3.													
4.													
5.													
6.													
7.													
8. MAINTENANCE RECORDING FLAG		MTRF				CEU	DIGITAL			0-1			
9. PERFORMANCE RECORDING FLAG		PFRF				CEU	DIGITAL			0-1			
4. CREW PERFORMANCE EXCEEDING CUES NO. 4		WDC4		043		CEU	DIGITAL			000-177			
BIT													
1. CREW EXCEEDENCE SPARE													
2. CREW EXCEEDENCE SPARE													
3. CREW EXCEEDENCE SPARE													
4. CREW EXCEEDENCE SPARE													
5. CREW EXCEEDENCE NO. 32-30		CE32				CEU	DIGITAL			0-1	NDT/DET		
6. CREW EXCEEDENCE NO. 31-29		CE31				CEU	DIGITAL			0-1	NDT/DET		
7. CREW EXCEEDENCE NO. 30-28		CE30				CEU	DIGITAL			0-1	NDT/DET		
8. CREW EXCEEDENCE NO. 29-27		CE29				CEU	DIGITAL			0-1	NDT/DET		
9. CREW EXCEEDENCE NO. 28-26		CE28				CEU	DIGITAL			0-1			
5. CREW PERFORMANCE EXCEEDENCE CUES NO. 3		WDC3		044		CEU	DIGITAL			000-777			
BIT													
1. CREW EXCEEDENCE NO. 27-25		CE27				CEU	DIGITAL			0-1	NDT/DET		
2. CREW EXCEEDENCE NO. 26-24		CE26				CEU	DIGITAL			0-1	NDT/DET		
3. CREW EXCEEDENCE NO. 25-23		CE25				CEU	DIGITAL			0-1	NDT/DET		

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R AIDS PARAMETER SEQUENCE LIST
R Table 101 (Sheet 1)

R EFFECTIVITY: ALL
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PARAMETERS			INPUT SIGNALS										
		LAC CODE	AIDS 563 TESTER CODE	DFDR, 563 TESTER CODE	DAU NO.	SIGNAL TYPE	DAU CHANNEL NO.	INPUT SIGNAL RANGE	OUTPUT BCD RANGE	AIDS EXCIT-* REF. NO.	SECTION	SCHEM
BIT												
4.	CREW EXCEEDENCE NO. 24-22	CE24			CEU	DIGITAL			0-1	NDT/DET		
5.	CREW EXCEEDENCE NO. 23-21	CE23			CEU	DIGITAL			0-1	NDT/DET		
6.	CREW EXCEEDENCE NO. 22-20	CE22			CEU	DIGITAL			0-1	NDT/DET		
7.	CREW EXCEEDENCE NO. 21-19	CE21			CEU	DIGITAL			0-1	NDT/DET		
8.	CREW EXCEEDENCE NO. 20-18	CE20			CEU	DIGITAL			0-1	NDT/DET		
9.	CREW EXCEEDENCE NO. 19-17	CE19			CEU	DIGITAL			0-1	NDT/DET		
6.	CREW PERFORMANCE EXCEEDENCE CUES NO. 2	WDC2		045	CEU	DIGITAL			000-777			
BIT												
1.	CREW EXCEEDENCE NO. 18-16	CE18			CEU	DIGITAL			0-1	NDT/DET		
2.	CREW EXCEEDENCE NO. 17-15	CE17			CEU	DIGITAL			0-1	NDT/DET		
3.	CREW EXCEEDENCE NO. 16-14	CE16			CEU	DIGITAL			0-1	NDT/DET		
4.	CREW EXCEEDENCE NO. 15-13	CE15			CEU	DIGITAL			0-1	NDT/DET		
5.	CREW EXCEEDENCE NO. 14	CE14			CEU	DIGITAL			0-1	NDT/DET		
6.	CREW EXCEEDENCE NO. 13-12	CE13			CEU	DIGITAL			0-1	NDT/DET		
7.	CREW EXCEEDENCE NO. 12-11	CE12			CEU	DIGITAL			0-1	NDT/DET		
8.	CREW EXCEEDENCE NO. 11-10	CE11			CEU	DIGITAL			0-1	NDT/DET		
9.	CREW EXCEEDENCE NO. 10-9	CE10			CEU	DIGITAL			0-1	NDT/DET		
7.	CREW PERFORMANCE EXCEEDENCE CUES NO. 1	WDC1		046	CEU	DIGITAL			000-777			
BIT												
1.	CREW EXCEEDENCE NO. 9-8	CE09			CEU	DIGITAL			0-1	NDT/DET		
2.	CREW EXCEEDENCE NO. 8-7	CE08			CEU	DIGITAL			0-1	NDT/DET		
3.	CREW EXCEEDENCE NO. 7-6	CE07			CEU	DIGITAL			0-1	NDT/DET		
4.	CREW EXCEEDENCE NO. 6-5	CE06			CEU	DIGITAL			0-1	NDT/DET		
5.	CREW EXCEEDENCE NO. 5-4	CE05			CEU	DIGITAL			0-1	NDT/DET		
6.	CREW EXCEEDENCE NO. 4-3	CE04			CEU	DIGITAL			0-1	NDT/DET		
7.	CREW EXCEEDENCE NO. 3-2	CE03			CEU	DIGITAL			0-1	NDT/DET		
8.	CREW EXCEEDENCE NO. 2	CE02			CEU	DIGITAL			0-1	NDT/DET		
9.	CREW EXCEEDENCE NO. 1-1	CE01			CEU	DIGITAL			0-1	NDT/DET		
8.	AIRCRAFT EXCEEDENCE CUES NO. 1	WDA1		047	CEU	DIGITAL			000-777			
BIT												
1.	AIRCRAFT EXCEEDENCE NO. 9 - (OP)	APE9			CEU	DIGITAL			0-1	NDT/DET		
2.	AIRCRAFT EXCEEDENCE NO. 8 - (HSP)	APE8			CEU	DIGITAL			0-1	NDT/DET		
3.	AIRCRAFT EXCEEDENCE NO. 7 - (OT)	APE7			CEU	DIGITAL			0-1	NDT/DET		
4.	AIRCRAFT EXCEEDENCE NO. 6 - (HT)	APE6			CEU	DIGITAL			0-1	NDT/DET		
5.	AIRCRAFT EXCEEDENCE NO. 5 - (HD)	APE5			CEU	DIGITAL			0-1	NDT/DET		
6.	AIRCRAFT EXCEEDENCE NO. 4 - (N3)	APE4			CEU	DIGITAL			0-1	NDT/DET		
7.	AIRCRAFT EXCEEDENCE NO. 3 - (N2)	APE3			CEU	DIGITAL			0-1	NDT/DET		
8.	AIRCRAFT EXCEEDENCE NO. 2 - (N1)	APE2			CEU	DIGITAL			0-1	NDT/DET		
9.	AIRCRAFT EXCEEDENCE NO. 1 - (TGT)	APE1			CEU	DIGITAL			0-1	NDT/DET		
9.	TOTAL SCAN OUTPUT COUNTER (LOOP) MSDS	SCL1		048	CEU	DIGITAL			000-999			
10.	TOTAL SCAN OUTPUT COUNTER (LOOP) LSDS	SCL2		049	CEU	DIGITAL			000-999			
11.	TREND MODE INDICATOR	TMD1		050	CEU	DIGITAL			002-015			
12.	COMPUTED AIRSPEED NO. 1 (1ST)	CA11	3-1	051	037	1	SYN	AC-16	000-360	000-999	A1	31-32-10	25
13.	ELECTRONIC LOAD CENTER FAN BEARING TEMPERATURE	EFBT	72-2	052		2	DCMV	DC-20.52	0.00-21.5	000-624	-5V-A6	31-32-1	1
14.	RADIO ALTITUDE NO. 1 (1ST)	RA11	117 1	053	043	3	DCV	DC-25	0.00-4.95	000-990	A6	31-32-12	22

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AIDS PARAMETER SEQUENCE LIST
Table 101 (Sheet 2)

EFFECTIVITY: ALL

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PARAMETERS			INPUT SIGNALS										
			LAC CODE	AIDS 563 TESTER CODE	DFDR 563 TESTER CODE	DAU NO.	SIGNAL TYPE	DAU CHANNEL NO.	INPUT SIGNAL RANGE	OUTPUT BCD RANGE	*IDS EXCIT-* REF. NO.	SECTION	SCHEM
15.	IEPR NO. 1	EPR1	166-1	054	033	1	DCV	DC-69,70	0.00-4.37	000-874	A6	31-32-10	34
16.	MID BAGGAGE COMPARTMENT FAN BEARING TEMP.	MBBT	72-5	055		2	DCMV	DC-27,59	0.00-21.5	000-624	*-5V-A6	31-32-11	1
17.	FUEL QUANTITY NO. 1	FQ1	9-1	056		3	DCV	DC-45	0.19-4.95	038-990	A6	31-32-12	18
18.	TGT NO. 1 (AVERAGE)	TGT1	24-1	057		1	DCV	DC-61	0.00-5.60	000-999	A6	31-32-10	38
19.	AFT BAGGAGE COMPARTMENT FAN BEARING TEMP.	ABBT	72-6	058		2	DCMV	DC-28,60	0.00-21.5	000-624	*-5V-A6	31-32-11	1
20.	FUEL QUANTITY NO. 3	FQ3	9-4	059		3	DCV	DC-48	0.19-4.95	038-990	A6	31-32-12	18
21.	FUEL FLOW NO. 1	FF1	26-1	060		1	DCV	DC-13	0.00-5.00	000-999	A6	31-32-10	32
22.	HYDRAULIC PUMP CASE DRAIN FLOW A1	HDA1	66-1	061		2	ACV	AC-1	3.16-15.8	122-608	A6	31-32-11	3
23.	FUEL QUANTITY NO. 2 RIGHT	FQ2R	9-3	062		3	DCV	DC-47	0.19-4.95	038-990	A6	31-32-12	18
24.	N1 NO. 1	N11	21-1	063		1	DCV	DC-5	0.00-5.00	000-999	A6	31-32-10	35
25.	HYDRAULIC PUMP CASE DRAIN FLOW B1	HDB1	66-2	064		2	ACV	AC-2	3.16-15.8	122-608	A1	31-32-11	3
26.	FUEL QUANTITY NO. 2 LEFT	FQ2L	9-2	065		3	DCV	DC-46	0.19-4.95	038-990	A6	31-32-12	18
27.	OUT TIME (MSD HR, LSD HR, MSD MIN)	OUT1		066		CEU	DIGITAL			000-235			
28.	N2 NO. 1	N21	22-1	067		1	DCV	DC-37	0.00-5.00	000-999	A6	31-32-10	36
29.	HYDRAULIC PUMP CASE DRAIN FLOW C1	HDC1	66-3	068		2	ACV	AC-9	3.16-15.8	122-608	A1	31-32-11	3
30.	AUX. POWER UNIT RPM	APUR	75-1	069		3	DCV	DC-77	0.00-5.00	000-999	A6	31-32-12	32
31.	N3 NO. 1	N31	23-1	070		1	DCV	DC-45	0.00-5.00	000-999	A6	31-32-10	37
32.	FUEL FLOW REGULATOR THROTTLE ANGLE NO. 1	FFA1	32-1	071		2	SYN	AC-25	55.5-325	154-904	*-26-A1	31-32-11	14
33.	AUX. POWER UNIT TGT	APUT	74-1	072		3	DCV	DC-24	0.00-5.00	000-999	A6	31-32-12	32
34.	OIL PRESSURE NO. 1	OPR1	28-1	073		1	DCMV	DC-1,33	0.00-32.0	000-932	A1	31-32-10	39
35.	FAN OUTLET PRESSURE NO. 1	FOP1	76-1	074		2	DCV	DC-13	0.00-5.00	000-999	A6	31-32-11	15
36.	ON/OFF NO. 1	WOO1		075		3	DSCRT	ON/OFF		000-377			
BIT 1.													
2.	GROUND PROXIMITY PULL UP	GXPU	185-1			3	DSCRT	ON/OF-59	GND-28.0	0-1	ON/OFF		
3.	GROUND PROXIMITY FAULT	GXFT	185-2			3	DSCRT	ON/OF-51	GND-28.0	0-1	NFD/FLD		
4.	TAT FLAG	TATF	167-2			3	DSCRT	ON/OF-43	OPEN-12.0	0-1	FLD/NFD	31-32-12	33
5.	PRESSURE ALTITUDE NO. 2 FLAG	PAF2	38-6			3	DSCRT	ON/OF-35	0.00-28.0	0-1	FLD/NFD	31-32-10	27
6.	STATIC AIR TEMPERATURE NO. 2 FLAG/TAS NO. 2 FLAG	SAF2	38-7			3	DSCRT	ON/OF-27	0.00-28.0	0-1	FLD/NFD	31-32-10	27
7.	COMPUTED AIRSPEED NO. 2 FLAG	CSF2	38-8			3	DSCRT	ON/OF-19	0.00-28.0	0-1	FLD/NFD	31-32-10	27
8.	MACH NO. 2 FLAG	MHF2	38-9			3	DSCRT	ON/OF-11	0.00-28.0	0-1	FLD/NFD	31-32-10	27
9.	RADIO ALTITUDE NO. 2 FLAG	RAF2	171-2			3	DSCRT	ON/OF-3	0.00-28.0	0-1	FLD/NFD		
37.	OIL TEMPERATURE NO. 1	OTM1	27-1	076		1	DCV	DC-21	0.00-5.00	000-999	A6	31-32-10	40
38.	INTERMEDIATE PRESSURE COMP. DELIVERY PRESS. NO. 1	IPP1	77-1	077		2	DCV	DC-21	0.00-5.00	000-999	A6	31-32-10	15
39.	ON/OFF NO. 2	WOO2		078	040	3	DSCRT	ON/OFF		000-377			
BIT 1.								* DFDR	WILL READ	000-777			
2.	NOSE COWL ANTI-ICE CONTROL SWITCH NO. 1	NCS1	31-1A			3	DSCRT	ON/OF-57	0.00-28.0	0-1	OFF/ON	31-32-10	15
3.	NOSE COWL ANTI-ICE CONTROL SWITCH NO. 3	NCS3	31-3A			3	DSCRT	ON/OF-49	0.00-28.0	0-1	OFF/ON	31-32-10	15
4.	OUTER MARKER	OTMK	152-2			3	DSCRT	ON/OF-41	0.00- 6.0	0-1	NCP/CPT	31-32-10	30
5.	INNER MARKER	INMK	152-3			3	DSCRT	ON/OF-33	0.00- 6.0	0-1	NCP/CPT	31-32-10	30
6.	FIRE WARNING ENGINE NO. 1	FWE1	180-1			3	DSCRT	ON/OF-25	0.00-28.0	0-1	OFF/ON		
7.	FIRE WARNING ENGINE NO. 2	FWE2	180-2			3	DSCRT	ON/OF-17	0.00-28.0	0-1	OFF/ON		
8.	FIRE WARNING ENGINE NO. 3	FWE3	180-3			3	DSCRT	ON/OF-9	0.00-28.0	0-1	OFF/ON		

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PARAMETERS		INPUT SIGNALS										
		LAC CODE	AIDS 563 TESTER CODE	DFDR 563 TESTER CODE	DAU NO.	SIGNAL TYPE	DAU CHANNEL NO.	INPUT SIGNAL RANGE	OUTPUT BCD RANGE	AIDS EXCIT-* REF. NO.	SECTION	SCHEM
BIT												
9.	FIRE WARNING AUX. POWER UNIT	FWAP	180-4			3	DSCRT	ON/OF-1	0.00-28.0	0-1	OFF/ON		
40.	OIL QUANTITY NO. 1	OQU1	20-1	079		1	DCV	DC-29	0.04-5.00	008-999	A6	31-32-10	41
41.	INTERMEDIATE PRESSURE COMP. DELIVERY TEMP. NO. 1	IPT1	79-1	080		2	DCMV	DC-10,42	2.31-9.63	067-280	*-5V-A1	31-32-11	16
42.	OUT TIME (LSD MIN, MSD SEC, LSD SEC)	OUT2		081		CEU	DIGITAL			000-959			
43.	PITCH ATTITUDE	PHAT	39-1	082	022	1	SYN	AC-39	275-085	764-236	A1	31-32-10	28
44.	HIGH PRESSURE COMPRESSOR DELIVERY PRESSURE NO. 1	HPP1	78-1	083		2	DCV	DC-29	0.00-5.00	000-999	A6	31-32-11	15
45.	ROLL ATTITUDE	RLAT	40-1	084	029	1	SYN	AC-40	000-360	000-999	A1	31-32-10	28
46.	HIGH PRESSURE COMPRESSOR DELIVERY TEMP. NO. 1	HPT1	80-1	085		2	DCMV	DC-17,49	7,53-21,2	219-619	*-5V-A6	31-32-11	16
47.	PITCH TRIM POSITION RIGHT HAND	PTPR	110-1	086		1	DCV	DC-56	0.50-4.50	100-900	*-5V-A6	31-32-10	8
48.	TURBINE COOLING AIR TEMPERATURE NO. 1-1	TC11	85-1	087		2	DCMV	DC-25,57	8.13-45.2	162-903	*-5V-A6	31-32-11	17
49.	PITCH TRIM POSITION LEFT HAND	PTPL	110-2	088	020	1	DCV	DC-64	0.50-4.50	100-900	*-5V-A6	31-32-10	8
50.	TURBINE COOLING AIR TEMPERATURE NO. 1-2	TC12	85-2	089		2	DCMV	DC-26,58	8.13-45.2	162-903	*-5V-A6	31-32-11	17
51.	CONTROL COLUMN POSITION-PITCH (CAPT)	CPPC	111-1	090	018	1	DCV	DC-75	1.03-3.81	206-762	*-5V-A6	31-32-10	8
52.	SPLITTER TEMPERATURE NO. 1	SPT1	161-1	091		2	DCMV-MA	DC-55	92.0-177	517-997	*-MA-A6	31-32-11	13
53.	CONTROL COLUMN POSITION-PITCH (F/O)	CPPF	111-2	092	019	1	DCV	DC-76	1.03-3.81	206-762	*-5V-A6	31-32-10	8
54.	FUEL DIFFERENTIAL PRESSURE AT F/F REGULATOR NO. 1	FDP1	37-1	093		2	DCV	DC-73	0.00-5.00	000-999	A6	31-32-11	15
55.	VERTICAL ACCELERATION	VTG	13-1	094	015	1	DCV	DC-25	0.20-5.00	040-999	*-28-A6	31-32-10	16
56.	ENGINE VIBRATION NO. 1 HIGH (FRONT)	V1HF	30-1A	095		2	DCV	DC-65	0.00-5.00	000-999	A6	31-32-11	18
57.	OFF TIME (MSD HR, LSD HR, MSD MIN)	OFF1		096		CEU	DIGITAL			000-235			
58.	LATERAL ACCELERATION	LTG	15-1	097	016	1	DCV	DC-26	0.20-5.00	040-999	*-28-A6	31-32-10	16
59.	ENGINE VIBRATION NO. 1 MEDIUM (FRONT)	V1MF	30-1B	098		2	DCV	DC-56	0.00-5.00	000-999	A6	31-32-11	18
60.	FLIGHT STATION TEMPERATURE	FSTM	59-1	099		3	DCV	DC-69	0.00-5.00	000-999	A6	31-32-12	14
61.	CONTROL COLUMN POSITION-ROLL (CAPT)	CPRC	51-1	100	027	1	DCV	DC-40	0.32-4.68	064-937	*-5V-A6	31-32-10	5
62.	ENGINE VIBRATION NO. 1 LOW (FRONT)	V1LF	30-1C	101		2	DCV	DC-66	0.00-5.00	000-999	A6	31-32-11	18
63.	FORWARD CABIN TEMPERATURE	FC1M	59-2	102		3	DCV	DC-70	0.00-5.00	000-999	A6	31-32-12	13
64.	CONTROL COLUMN POSITION-ROLL (F/O)	CPRF	51-2	103	028	1	DCV	DC-48	0.32-4.68	064-937	*-5V-A6	31-32-10	5
65.	ENGINE VIBRATION NO. 1 HIGH (REAR)	V1HR	30-2A	104		2	DCV	DC-61	0.00-5.00	000-999	A6	31-32-11	18
66.	MID CABIN TEMPERATURE	MCTM	59-3	105		3	DCV	DC-71	0.00-5.00	000-999	A6	31-32-12	14
67.	RUDDER PEDAL POSITION	RPP	112-1	106	013	1	DCV	DC-80	0.80-4.26	160-852	*-5V-A6	31-32-10	5
68.	ENGINE VIBRATION NO. 1 MEDIUM (REAR)	V1MR	30-2B	107		2	DCV	DC-24	0.00-5.00	000-999	A6	31-32-11	18
69.	AFT CABIN TEMPERATURE	ACTM	59-4	108		3	DCV	DC-72	0.00-5.00	000-999	A6	31-32-12	14
70.	THRUST REVERSER IN-TRANSIT NO. 1 (TIME)	TRIT	36-1	109		1	DSCRT	ON/OF-5	0.00-14.0	000-999	64CT/SEC	31-32-10	22
71.	ENGINE VIBRATION NO. 1 LOW (REAR)	V1LR	30-2C	110		2	DCV	DC-62	0.00-5.00	000-999	A6	31-32-11	18
72.	GALLEY TEMPERATURE	GLTM	59-5	111		3	DCV	DC-80	0.00-5.00	000-999	A6	31-32-12	14
73.	OFF TIME (LSD MIN, MSD SEC, LSD SEC)	OFF2		112		CEU	DIGITAL			000-959			
	END OF DATA FRAME CHARACTER NO. 1 X'EC4'	EDF1		113		CEU	DIGITAL			HEX 4			
74.	ANGLE OF ATTACK LEFT HAND	AALH	42-1	114	011	1	SYN	AC-6	279-081	775-225	A1	31-32-10	3
75.	HYDRAULIC PUMP CASE DRAIN FLOW D1	HDD1	66-4	115		2	ACV	AC-10	3.16-15.8	122-608	A6	31-32-11	3
76.	FLIGHT STATION DUCT TEMPERATURE	FSDT	58-1	116		3	DCV	DC-6	0.00-5.00	000-969	A6	31-32-12	13
77.	ANGLE OF ATTACK RIGHT HAND	AARH	42-2	117	042	1	SYN	AC-7	279-081	775-225	A6	31-32-10	3
78.	HYDRAULIC PUMP CASE DRAIN FLOW B2	HDB2	66-5	118		2	ACV	AC-17	3.16-15.8	122-608	A6	31-32-11	3
79.	TOTAL AIR TEMPERATURE	TAT	167-1	119	023	3	DCV	DC-32	0.00-5.00	000-999	A6	31-32-12	33

PARAMETERS			INPUT SIGNALS										
			LAC CODE	AIDS 563 TESTER CODE	DFDR 563 TESTER CODE	DAU NO.	SIGNAL TYPE	DAU CHANNEL NO.	INPUT SIGNAL RANGE	OUTPUT BCD RANGE	AIDS EXCIT-* REF. NO.	SECTION	SCHEM
80.	IEPR NO. 2	EPR2	164-2	120	034	1	DCV	DC-71,72	0.00-4.37	000-874	A6	31-32-10	34
81.	HYDRAULIC PUMP CASE DRAIN FLOW C2	HDC2	66-6	121		2	ACV	AC-18	3.16-15.8	122-608	A6	31-32-11	3
82.	FORWARD CABIN DUCT TEMPERATURE	FCDT	58-2	122		3	DCV	DC-7	0.00-5.00	000-999	A6	31-32-12	13
83.	TGT NO. 2 (AVERAGE)	TGT2	24-2	123		1	DCV	DC-62	0.00-5.00	000-999	A6	31-32-10	38
84.	BRAKE METERED HYDRAULIC PRESSURE NORMAL L.H.	BMNL	67-1	124		2	DCMV	DC-1,33	0.00-30.0	000-874	*-5V-A1	31-32-11	11
85.	MID CABIN DUCT TEMPERATURE	MCDT	58-3	125		3	DCV	DC-8	0.00-5.00	000-999	A6	31-32-12	13
86.	FUEL FLOW NO. 2	FF2	26-2	126		1	DCV	DC-14	0.00-5.00	000-999	A6	31-32-10	32
87.	BRAKE METERED HYDRAULIC PRESSURE NORMAL R.H.	BMNR	67-2	127		2	DCMV	DC-2,34	0.00-30.0	000-874	*-5V-A1	31-32-11	11
88.	AFT CABIN DUCT TEMPERATURE	ACDT	58-4	128		3	DCV	DC-13	0.00-5.00	000-999	A6	31-32-12	14
89.	N1 NO. 2	N12	21-2	129		1	DCV	DC-6	0.00-5.00	000-999	A6	31-32-10	35
90.	BRAKE METERED HYDRAULIC PRESSURE ALTERNATE L.H.	BMAL	67-3	130		2	DCMV	DC-3,35	0.00-30.0	000-874	*-5V-A1	31-32-11	11
91.	GALLEY DUCT TEMPERATURE	GLDT	58-5	131		3	DCV	DC-14	0.00-5.00	000-999	A6	31-32-12	13
92.	N2 NO. 2	N22	22-2	132		1	DCV	DC-38	0.00-5.00	000-999	A6	31-32-10	36
93.	BRAKE METERED HYDRAULIC PRESSURE ALTERNATE R.H.	BMAR	67-4	133		2	DCMV	DC-4,36	0.00-30.0	000-874	*-5V-A1	31-32-11	11
94.	CARGO COMPARTMENT TEMPERATURE (FORWARD)	CCTF	105-1	134		3	DCV	DC-53	0.00-5.00	000-999	A6	31-32-12	15
95.	ON TIME (MSD HR, LSD HR, MSD MIN)	ONT1		135		CEU	DIGITAL			000-235			
96.	N3 NO. 2	N32	23-2	136		1	DCV	DC-46	0.00-5.00	000-999	A6	31-32-10	37
97.	FUEL FLOW REGULATOR THROTTLE ANGLE NO. 2	FFA2	32-2	137		2	SYN	AC-38	55.5 325	154-904	*-26-A1	31-32-11	14
98.	CARGO COMPARTMENT TEMPERATURE (MID)	CCTM	105-2	138		3	DCV	DC-54	0.00-5.00	000-999	A6	31-32-12	15
99.	OIL PRESSURE NO. 2	OPR2	28-2	139		1	DCMV	DC-2,34	0.00-32.0	000-932	A1	31-32-10	39
100.	FAN OUTLET PRESSURE NO. 2	FOP2	76-2	140		2	DCV	DC-14	0.00-5.00	000-999	A6	31-32-11	15
101.	CARGO COMPARTMENT TEMPERATURE (AFT)	CCTA	105-3	141		3	DCV	DC-55	0.00-5.00	000-999	A6	31-32-12	15
102.	OIL TEMPERATURE NO. 2	OTM2	27-2	142		1	DCV	DC-22	0.00-5.00	000-999	A6	31-32-10	40
103.	INTERMEDIATE PRESSURE COMP. DELIVERY PRESS. NO. 2	IPP2	77-2	143		2	DCV	DC-22	0.00-5.00	000-999	A6	31-32-11	15
104.	BLEED AIR SUPPLY DUCT TEMPERATURE ENGINE NO. 1	BDT1	101-1	144		3	DCV	DC-37	0.00-5.00	000-999	A6	31-32-12	17
105.	OIL QUANTITY NO. 2	OQU2	29-2	145		1	DCV	DC-29	0.04-5.00	008-999	A6	31-32-10	41
106.	INTERMEDIATE PRESSURE COMP. DELIVERY TEMP. NO. 2	IPT2	79-2	146		2	DCMV	DC-11,43	2.31-9.63	067-280	*-5V-A1	31-32-11	16
107.	RADIO ALTITUDE NO. 2 (1ST)	RA21	117-2	147		3	DCV	DC-26	0.00-4.95	000-999	A6	31-32-12	22
108.	ON/OFF NO. 3	WD03		148	056	1	DSCRT	ON/OFF		000-377			
BIT													
1.													
2.	NOSE COWL ANTI-ICE CONTROL SWITCH NO. 2	NCS2	31-2A			1	DSCRT	ON/OF-60	0.00-28.0	0-1	OFF/ON	31-32-10	15
3.	BUS FAIL DC NO. 2	FDC2	184-10			1	DSCRT	ON/OF-52	0.00-28.0	0-1	FLD/NFD		
4.	THRUST REVERSER DEPLOYED NO. 1	TRD1	122-1			1	DSCRT	ON/OF-44	0.00-14.5	0-1	NDP/DEP	31-32-10	22
5.	THRUST REVERSER DEPLOYED NO. 2	TRD2	122-2			1	DSCRT	ON/OF-36	0.00-14.5	0-1	NDP/DEP	31-32-10	22
6.	THRUST REVERSER DEPLOYED NO. 3	TRD3	122-3			1	DSCRT	ON/OF-28	0.00-14.5	0-1	NDP/DEP	31-32-10	22
7.	HYDRAULIC PRESSURE LO TO SYSTEM A	HYLA	177-1			1	DSCRT	ON/OF-20	0.00-28.0	0-1	LOW/NLO		
8.	TRAILING EDGE FLAPS LOCKED OUT	TEFK	178-1			1	DSCRT	ON/OF-12	0.00-28.0	0-1	NLK/LCK		
9.	LEADING EDGE SLATS LOCKED OUT	LESK	178-2			1	DSCRT	ON/OF-4	0.00-28.0	0-1	NLK/LCK		
109.	HIGH PRESSURE COMPRESSOR DELIVERY PRESSURE NO. 2	HPP2	78-2	149	060	2	DCV	DC-30	0.00-5.00	000-999	A6	31-32-11	15
110.	COMPUTED AIRSPEED NO. 2 (1ST)	CA21	3-2	150		3	SYN	AC-16	000-360	000-999	A6	31-32-10	25
111.	ON TIME (LSD MIN, MSD SEC, LSD SEC)	ONT2		151		CEU	DIGITAL			000-959			
112.	HYDRAULIC SYSTEM PRESSURE A	HSPA	64-1	152		1	ACV	AC-21	10.5-15.5	054-946	*-26-A3	31-32-10	14

M1-0000-31-638

R AIDS PARAMETER SEQUENCE LIST
R Table 101 (Sheet 5)

R EFFECTIVITY: ALL
R
0018

PARAMETERS			INPUT SIGNALS										
			LAC CODE	AIDS 563 TESTER CODE	DFDR 563 TESTER CODE	DAU NO.	SIGNAL TYPE	DAU CHANNEL NO.	INPUT SIGNAL RANGE	OUTPUT BCD RANGE	AIDS EXCIT-REF. NO.	SECTION	SCHEM
113.	HIGH PRESSURE COMPRESSOR DELIVERY TEMP. NO.2	HPT2	80-2	153		2	DCMV	DC-18,50	7.53-21.2	219-619	*-5V-A6	31-32-11	16
114.	BLEED AIR SUPPLY DUCT TEMPERATURE ENGINE NO.2	BDT2	101-2	154		3	DCV	DC-38	0.00-5.00	000-999	A6	31-32-12	17
115.	HYDRAULIC SYSTEM PRESSURE B	HSPB	64-2	155		1	ACV	AC-22	10.5-15.5	054-946	*-26-A4	31-32-10	14
116.	TURBINE COOLING AIR TEMPERATURE NO.2-1	TC21	85-5	156		2	DCMV	DC-5,37	8.13-45.2	162-903	*-5V-A1	31-32-11	17
117.	BLEED AIR SUPPLY DUCT TEMPERATURE ENGINE NO.3	BDT3	101-3	157		3	DCV	DC-39	0.00-5.00	000-999	A6	31-32-12	17
118.	STATIC AIR TEMPERATURE NO.1	SAT1	2-1	158		1	DCV	DC-8	3.19-4.38	638-876	C1	31-32-10	24
119.	TURBINE COOLING AIR TEMPERATURE ENGINE NO. 2-2	TC22	85-6	159		2	DCMV	DC-6,38	8.13-45.2	162-903	*-5V-A1		
120.	STATIC AIR TEMPERATURE NO.2	SAT2	2-2	160		3	DCV	DC-5	3.19-4.38	638-876	D2	31-32-10	24
121.	TRUE AIRSPEED NO.1	TAS1	8-1	161		1	DCV	DC-32	0.93-3.72	186-744	A6	31-32-10	26
122.	SPLITTER TEMPERATURE NO.2	SPT2	161-2	162		2	DCMV-MA	DC-67	92.0-177	517-997	*-MA-A3	31-32-11	13
123.	TRUE AIRSPEED NO.2	TAS2	8-2	163		3	DCV	DC-15	0.93-3.72	186-744	A6	31-32-10	26
124.	PRESSURE ALTITUDE NO.1 (COARSE)	ALC1	1-1	164	049	1	SYN	AC-1	357-133	993-370	A1	31-32-10	23
125.	FUEL DIFFERENTIAL PRESSURE AT F/F REGULATOR NO.2	FDP2	37-2	165		2	DCV	DC-74	0.00-5.00	000-999	A6	31-32-11	15
126.	PRESSURE ALTITUDE NO.2 (COARSE)	ALC2	1-3	166		3	SYN	AC-1	357-133	993-370	A6	31-32-10	23
127.	IN TIME (MSD HR, LSD HR, MSD MIN)	INT1		167		CEU	DIGITAL			000-235			
128	PRESSURE ALTITUDE NO.1 (FINE)	ALF1	1-2	168	050	1	SYN	AC-2	000-360	000-999	A1	31-32-10	23
129.	ENGINE VIBRATION NO.2 HIGH (FRONT)	V2HF	30-3A	169		2	DCV	DC-32	0.00-5.00	000-999	A6	31-32-11	18
130.	PRESSURE ALTITUDE NO.2 (FINE)	ALF2	1-4	170		3	SYN	AC-2	000-360	000-999	A6	31-32-10	23
131.	MACH NO.1	MCH1	4-1	171	045	1	SYN	AC-9	000-360	000-999	A6	31-32-10	25
132.	ENGINE VIBRATION NO.2 MEDIUM (FRONT)	V2MF	30-3B	172		2	DCV	DC-63	0.00-5.00	000-999	A6	31-32-11	18
133.	MACH NO.2	MCH2	4-2	173		3	SYN	AC-9	000-360	000-999	A6	31-32-10	25
134.	HEADING (DIRECTIONAL)	HDNG	41-1	174	030	1	SYN	AC-5	000-360	000-999	A1	31-32-10	29
135.	ENGINE VIBRATION NO.2 LOW (FRONT)	V2LF	30-3C	175		2	DCV	DC-76	0.00-5.00	000-999	A6	31-32-11	18
136.	SELECTED COURSE NO.2	SLC2	186-2	176	039	3	SYN	AC-18	000-360	000-999	A6		
137.	SELECTED COURSE NO.1	SLC1	186-1	177	021	1	SYN	AC-18	000-360	000-999	A1		
138.	ENGINE VIBRATION NO.2 HIGH (REAR)	V2HR	30-4A	178		2	DCV	DC-64	0.00-5.00	000-999	A6	31-32-11	18
139.	HYDRAULIC SYSTEM PRESSURE C	HSPC	64-3	179		3	ACV	AC-21	10.5-15.5	054-946	*-26-A3	31-32-10	14
140.	ON/OFF NO.4	WD04		180	009-038	1	DSCRT	ON/OFF		000-377			
BIT													
1.													
2.	PRESSURE ALTITUDE NO.1 FLAG	PAF1	38-1			1	DSCRT	ON/OF-57	0.00-28.0	0-1	FLD/NFD	31-32-10	27
3.	STATIC AIR TEMPERATURE NO.1 FLAG/TAS NO.1 FLAG	SAF1	38-2			1	DSCRT	ON/OF-49	0.00-28.0	0-1	FLD/NFD	31-32-10	27
4.	COMPUTED AIRSPEED NO.1 FLAG	CSF1	38-3			1	DSCRT	ON/OF-41	0.00-28.0	0-1	FLD/NFD	31-32-10	27
5.	MACH NO. 1 FLAG	MHF1	38-4			1	DSCRT	ON/OF-33	0.00-28.0	0-1	FLD/NFD	31-32-10	27
6.	BUS FAIL DC NO.1	FDC1	184-9		009	1	DSCRT	ON/OF-25	0.00-28.0	0-1	FLD/NFD		
7.	CWS MODE A	CWSA	176-2		038	1	DSCRT	ON/OF-17	0.00-28.0	0-1	NEG/ENG		
8.	CMD MODE B	CMDB	176-3		038	1	DSCRT	ON/OF-9	0.00-28.0	0-1	NEG/ENG		
9.	CWS MODE B	CWSB	176-4		038	1	DSCRT	ON/OF-1	0.00-28.0	0-1	NEG/ENG		
141.	ENGINE VIBRATION NO.2 MEDIUM (REAR)	V2MR	30-4B	181		2	DCV	DC-48	0.00-5.00	000-999	A6	31-32-11	18
142.	HYDRAULIC SYSTEM PRESSURE D	HSPD	64-4	182		3	ACV	AC-22	10.5-15.5	054-946	-26-A4	31-32-10	14
143.	IN TIME (LSD MIN,MSD SEC, LSD SEC)	INT2		183		CEU	DIGITAL			000-959			
144.	THRUST REVERSER IN TRANSIT NO.2 (TIME)	TRZT	36-2	184		1	DSCRT	ON/OF-13	0.00-14.0	000-999	64CT/SEC	31-32-10	22
145.	ENGINE VIBRATION NO.2 LOW (REAR)	V2LR	30-4C	185		2	DCV	DC-77	0.00-5.00	000-999	A6	31-32-11	18

PARAMETERS		INPUT SIGNALS										
		LAC CODE	AIDS 563 TESTER CODE	DFDR 563 TESTER CODE	DAU NO.	SIGNAL TYPE	DAU CHANNEL NO.	INPUT SIGNAL RANGE	OUTPUT BCD RANGE	AIDS EXCIT-* REF. NO.	SECTION	SCHEM
146. COMPUTED AIRSPEED NO. 2 (2ND)	CA22	3-2	186	060	3	SYN	AC-16	000-360	000-999	A6	31-32-10	25
END OF DATA FRAME CHARACTER NO. 2 X'EC3'	EDF2		187		CEU	DIGITAL			HEX 3			
147. COMPUTED AIRSPEED NO. 1 (2ND)	CA12	3-1	188	037	1	SYN	AC-16	000-360	000-999	A1	31-32-10	25
148. HYDRAULIC PUMP CASE DRAIN TEMPERATURE (PUMP A1)	HTA1	129-1	189		2	DCMV-MA	DC-69	79.4-178	446-999	*-MA-A3	31-32-11	2
149. RADIO ALTITUDE NO. 1 (2ND)	RA12	117-1	190	043	3	DCV	DC-25	0.00-4.95	000-990	A6	31-32-12	22
150. IEPR NO. 3	EPR3	164-3	191	035	1	DCV	DC-73,74	0.00-4.37	000-874	A6	31-32-10	38
151. HYDRAULIC PUMP CASE DRAIN TEMPERATURE (PUMP B1)	HTB1	129-2	192		2	DCMV-MA	DC-70	79.4-178	446-999	*-MA-A3	31-32-11	2
152. RADIO ALTITUDE NO. 2 (2ND)	RA22	117-2	193		3	DCV	DC-26	0.00-4.95	000-990	A6	31-32-12	22
153. TGT NO. 3 (AVERAGE)	TGT3	24-3	194		1	DCV	DC-63	0.00-5.00	000-999	A6	31-32-10	38
154. HYDRAULIC PUMP CASE DRAIN TEMPERATURE (PUMP C1)	HTC1	129-3	195		2	DCMV-MA	DC-71	79.4-178	446-999	*-MA-A3	31-32-11	2
155. ON/OFF NO. 5	WD05		196		3	DSCRT	ON/OFF		000-377			
BIT												
1.												
2. HIGH PRESSURE SHUT OFF ENGINE NO. 1	HSO1	57-1			3	DSCRT	ON/OF-60	0.00-28.0	0-1	NCD/CSD	31-32-12	30
3. HIGH PRESSURE SHUT OFF ENGINE NO. 2	HSO2	57-2			3	DSCRT	ON/OF-52	0.00-28.0	0-1	NCD/CSD	31-32-12	30
4. HIGH PRESSURE SHUT OFF ENGINE NO. 3	HSO3	57-3			3	DSCRT	ON/OF-44	0.00-28.0	0-1	NCD/CSD	31-32-12	30
5. SAFETY VALVE (FORWARD)	SFVF	57-7			3	DSCRT	ON/OF-36	0.00-28.0	0-1	NCD/CSD	31-32-12	2
6. SAFETY VALVE (AFT)	SFVA	57-8			3	DSCRT	ON/OF-28	0.00-28.0	0-1	NCD/CSD	31-32-12	2
7. LOCALIZER NO. 2 TUNE	LZT2	163-2			3	DSCRT	ON/OF-20	0.00-28.0	0-1	TLN/NTN	31-32-12	29
8. LOCALIZER NO. 1 TUNE	LZT1	163-1			3	DSCRT	ON/OF-12	0.00-28.0	0-1	TLN/NTN	31-32-12	29
9. RADIO ALTITUDE NO. 1 FLAG	RAF1	171-1			3	DSCRT	ON/OF-4	0.00-28.0	0-1	FLD/NFD		
156. FUEL FLOW NO. 3	FF3	26-3	197		1	DCV	DC-15	0.00-5.00	000-999	A6	31-32-10	32
157. HYDRAULIC PUMP CASE DRAIN TEMPERATURE (PUMP D1)	HTD1	129-4	198		2	DCMV-MA	DC-72	79.4-178	446-999	*-MA-A3	31-32-11	2
158. WATER SEPARATOR PRESSURE PACK NO. 1	WSP1	53-1	199		3	DCMV	DC-1,33	0.00-30.0	000-874	*-5V-A1	31-32-12	5
159. N1 NO. 3	N13	21-3	200		1	DCV	DC-7	0.00-5.00	000-999	A6	31-32-10	35
160. HYDRAULIC PUMP CASE DRAIN TEMPERATURE (AUX. B2)	HTB2	129-5	201		2	DCMV-MA	DC-53	79.4-178	446-999	*-MA-A3	31-32-11	2
161. WATER SEPARATOR PRESSURE PACK NO. 2	WSP2	53-2	202		3	DCMV	DC-2,34	0.00-30.0	000-874	*-5V-A1	31-32-12	5
162. N2 NO. 3	N23	22-3	203		1	DCV	DC-39	0.00-5.00	000-999	A6	31-32-10	36
163. CABIN ALTITUDE ABSOLUTE PRESSURE	CAAP	60-1	204		2	DCMV	DC-9,41	0.00-30.0	000-874	*-5V-A1	31-32-11	10
164. WATER SEPARATOR PRESSURE PACK NO. 3	WSP3	53-3	205		3	DCMV	DC-3,35	0.00-30.0	000-874	*-5V-A1	31-32-12	5
165. N3 NO. 3	N33	23-3	206		1	DCV	DC-47	0.00-5.00	000-999	A6	31-32-10	37
166. FUEL FLOW REGULATOR THROTTLE ANGLE NO. 3	FFA3	32-3	207		2	SYN	AC-39	55.5-325	154-904	*-26-A1	31-32-11	14
167. MIXING PLENUM PRESSURE	MXPP	55-1	208		3	DCMV	DC-4,36	0.00-20.0	000-582	*-5V-A1	31-32-12	5
168. OIL PRESSURE NO. 3	OPR3	28-3	209		1	DCMV	DC-3,35	0.00-32.0	000-932	A6	31-32-10	39
169. FAN OUTLET PRESSURE NO. 3	FOP3	76-3	210		2	DCV	DC-15	0.00-5.00	000-999	A6	31-32-11	15
170. TURBINE INLET TEMPERATURE PYLON NO. 1	TIT1	103-1	211		3	DCV	DC-29	0.00-5.00	000-999	A6	31-32-12	16
171. OIL TEMPERATURE NO. 3	OTM3	27-3	212		1	DCV	DC-23	0.00-5.00	000-999	A6	31-32-10	40
172. INTERMEDIATE PRESSURE COMP. DELIVERY PRESS. NO. 3	IPP3	77-3	213		2	DCV	DC-23	0.00-5.00	000-999	A6	31-32-11	15
173. TURBINE INLET TEMPERATURE PYLON NO. 2	TIT2	103-2	214		3	DCV	DC-30	0.00-5.00	000-999	A6	31-32-12	16
174. OIL QUANTITY NO. 3	OQU3	29-3	215		1	DCV	DC-31	0.04-5.00	008-999	A6	31-32-10	41
175. INTERMEDIATE PRESSURE COMP. DELIVERY TEMP. NO. 3	IPT3	79-3	216		2	DCMV	DC-12,44	2.31-9.63	067-280	*-5V-A1	31-32-11	16
176. TURBINE INLET TEMPERATURE PYLON NO. 3	TIT3	103-3	217		3	DCV	DC-31	0.00-5.00	000-999	A6	31-32-12	16
177. BLEED AIR SUPPLY DUCT PRESSURE ENGINE NO. 1	BAP1	54-1	218		1	DCV	DC-77	0.00-3.67	000-733	A6	31-32-10	31

M1-0000-31-640

R AIDS PARAMETER SEQUENCE LIST
R Table 101 (Sheet 7)

R EFFECTIVITY: ALL
R
0018

PARAMETERS			INPUT SIGNALS										
			LAC CODE	AIDS 563 TESTER CODE	DFDR 563 TESTER CODE	DAU NO.	SIGNAL TYPE	DAU CHANNEL NO.	INPUT SIGNAL RANGE	OUTPUT BCD RANGE	AIDS EXCIT-REF. NO.	SECTION	SCHEM
178.	HIGH PRESSURE COMPRESSOR DELIVERY PRESSURE NO. 3	HPP3	78-3	219		2	DCV	DC-31	0.00-5.00	000-999	A6	31-32-11	15
179.	ACM DISCHARGE TEMPERATURE PACK NO. 1	ADT1	56-1	220		3	DCV	DC-21	0.00-5.00	000-999	A6	31-32-12	12
180.	BLEED AIR SUPPLY DUCT PRESSURE ENGINE NO. 2	BAP2	54-2	221		1	DCV	DC-78	0.00-3.67	000-733	A6	31-32-10	31
181.	HIGH PRESSURE COMPRESSOR DELIVERY TEMP. NO. 3	HPT3	80-3	222		2	DCMV	DC-19,51	7.53-21.2	219-619	A6	31-32-11	16
182.	ACM DISCHARGE TEMPERATURE PACK NO. 2	ADT2	56-2	223		3	DCV	DC-22	0.00-5.00	000-999	A6	31-32-12	12
183.	BLEED AIR SUPPLY DUCT PRESSURE ENGINE NO. 3	BAP3	54-3	224		1	DCV	DC-79	0.00-3.67	000-733	A6	31-32-10	31
184.	TURBINE COOLING AIR TEMPERATURE NO. 3-1	TC31	85-9	225		2	DCMV	DC-7,39	8.13-45.2	162-903	-5V-A1	31-32-11	17
185.	ACM DISCHARGE TEMPERATURE PACK NO. 3	ADT3	56-3	226		3	DCV	DC-23	0.00-5.00	000-999	A6	31-32-12	12
186.	AILERON POSITION LEFT HAND OUTBOARD	APLO	11-1	227		1	SYN	AC-29	340-020	722-278	A6	31-32-10	6
187.	TURBINE COOLING AIR TEMPERATURE NO. 3-2	TC32	85-10	228		2	DCMV	DC-8,40	8.13-45.2	162-903	--5V-A1	31-32-11	17
188.	LOCALIZER DEVIATION NO. 1	LZD1	114-1	229	041	3	DCMV	DC-9,41	+/-100	000-999	A1	31-32-12	28
189.	AILERON POSITION LEFT HAND INBOARD	APL1	11-2	230	024	1	SYN	AC-30	340-020	722-278	A6	31-32-10	6
190.	SPLITTER TEMPERATURE NO. 3	SPT3	161-3	231		2	DCMV-MA	DC-68	92.0-177	517-997	--MA-A3	31-32-11	13
191.	LOCALIZER DEVIATION NO. 2	LZD2	114-2	232		3	DCMV	DC-10,42	+/-100	000-999	A1	31-32-12	28
192.	AILERON POSITION RIGHT HAND OUTBOARD	APRO	11-3	233	026	1	SYN	AC-31	340-020	722-278	A6	31-32-10	6
193.	FUEL DIFFERENTIAL PRESSURE AT F/F REGULATOR NO. 3	FDP3	37-3	234		2	DCV	DC-75	0.00-5.00	000-999	A6	31-32-11	15
194.	GLIDE SLOPE DEVIATION NO. 1	GSD1	115-1	235	012	3	DCMV	DC-11,43	+/-100	000-999	A1	31-32-12	28
195.	AILERON POSITION RIGHT HAND INBOARD	APR1	11-4	236		1	SYN	AC-32	340-020	722-278	A6	31-32-10	6
196.	ENGINE VIBRATION NO. 3 HIGH (FRONT)	V3HF	30-5A	237		2	DCV	DC-45	0.00-5.00	000-999	A6	31-32-11	18
197.	GLIDE SLOPE DEVIATION NO. 2	GSD2	115-2	238		3	DCMV	DC-12,44	+/-100	000-999	A1	31-32-12	28
198.	STABILIZER POSITION	SPSN	46-1	239	017	1	SYN	AC-4	180-195	500-667	A6	31-32-10	9
199.	ENGINE VIBRATION NO. 3 MEDIUM (FRONT)	V3MF	30-5B	240		2	DCV	DC-78	0.00-5.00	000-999	A6	31-32-11	18
200.	ACM BEARING TEMPERATURE, MACHINE NO. 1	ABT1	104-1	241		3	DCMV	DC-17,49	0.00-21.5	000-624	-5V-A6	31-32-12	6
201.	SPOILER POSITION LEFT HAND GROUP NO. 1 (#2,#3,#4)	SPL1	11-5	242	052	1	SYN	AC-33	180-240	000-667	A6	31-32-10	11
202.	ENGINE VIBRATION NO. 3 LOW (FRONT)	V3LF	30-5C	243		2	DCV	DC-46	0.00-5.00	000-999	A6	31-32-11	18
203.	ACM BEARING TEMPERATURE, MACHINE NO. 2	ABT2	104-2	244		3	DCMV	DC-18,50	0.00-21.5	000-624	-5V-A6	31-32-12	6
204.	SPOILER POSITION LEFT HAND GROUP NO. 2 (#5,#6)	SPL2	11-6	245	051	1	SYN	AC-34	000-060	000-667	A6	31-32-10	11
205.	ENGINE VIBRATION NO. 3 HIGH (REAR)	V3HR	30-6A	246		2	DCV	DC-79	0.00-5.00	000-999	A6	31-32-11	18
206.	ACM BEARING TEMPERATURE, MACHINE NO. 3	ABT3	104-3	247		3	DCMV	DC-19,51	0.00-21.5	000-624	--5V-A6	31-32-12	6
207.	SPOILER POSITION RIGHT HAND GROUP NO. 1 (#2,#3,#4)	SPR1	11-7	248	054	1	SYN	AC-37	000-060	000 667	A6	31-32-10	11
208.	ENGINE VIBRATION NO. 3 MEDIUM (REAR)	V3MR	30-6B	249		2	DCV	DC-47	0.00-5.00	000-999	A6	31-32-11	18
209.	AVIONIC FAN BEARING TEMPERATURE	AFBT	72-1	250		3	DCMV	DC-20,52	0.00-21.5	000-624	-5V-A6	31-32-12	1
210.	THRUST REVERSER IN TRANSIT NO. 3 (TIME)	TR3T	36-3	251		1	DSCRT	ON/OF-21	0.00-14.0	000-999	64CT/SEC	31-32-10	22
211.	ENGINE VIBRATION NO. 3 LOW (REAR)	V3LR	30-6C	252		2	DCV	DC-80	0.00-5.00	000-999	A6	31-32-11	18
212.	RADIO ALTITUDE NO. 1 (3RD)	RA13	117-1	253	043	3	DCV	DC-25	0.00-4.95	000-990	A6	31-32-12	22
213.	COMPUTED AIRSPEED NO. 1 (3RD)	CAI3	3-1	254	037	1	SYN	AC-16	000-360	000-999	A1	31-32-10	25
214.	HYDRAULIC PUMP CASE DRAIN TEMPERATURE (AUX. C2)	HTC2	129-6	255		2	DCMV-MA	DC-54	79.4-178	446-999	--MA-A6	31-32-11	2
215.	GALLEY FAN BEARING TEMPERATURE	GFBT	72-3	256		3	DCMV	DC-27,59	0.00-21.5	000-624	-5V-A6	31-32-12	1
216.	SPOILER POSITION RIGHT HAND GROUP NO. 2 (#5,#6)	SPR2	11-8	257	053	1	SYN	AC-38	180-240	000-667	A6	31-32-10	11
217.	SERVO VALVE RETURN FLOW L.H. OUTBOARD AILERON B	SLOB	62-1	258		2	ACV	AC-3	2.20-11.0	186-932	SELF	31-32-11	5
218.	FORWARD BAGGAGE COMPARTMENT FAN BEARING TEMP.	FBBT	72-4	259		3	DCMV	DC-28,60	0.00-21.5	000-624	-5V-A6	31-32-12	1
219.	RUDDER POSITION	RP5N	52-1	260	014	1	SYN	AC-14	330-030	833-167	A6	31-32-10	7

M1-0000-31-641

PARAMETERS			INPUT SIGNALS										
			LAC CODE	AIDS 563 TESTER CODE	DFDR 563 TESTER CODE	DAU NO.	SIGNAL TYPE	DAU CHANNEL NO.	INPUT SIGNAL RANGE	OUTPUT BCD RANGE	AIDS EXCIT-* REF. NO.	SECTION	SCHEM
	END OF DATA FRAME CHARACTER NO. 3 X'EC2'	EDF3		261		CEU	DIGITAL			HEX 2			
220.	SERVO VALVE RETURN FLOW L.H. OUTBOARD AILERON A	SLOA	62-2	262		2	ACV	AC-4	2.20-11.0	186-932	SELF	31-32-11	5
221.	ON/OFF NO. 6	WDO6		263		3	DSCRT	ON/OFF		000-777			
BIT													
1.	APU ON	APGN	184-12		055	CEU	RPM		<80->80	0-1	OFF/ON		
2.	FLIGHT STATION ZONE TRIM VALVE	FSZV	57-9			3	DSCRT	ON/OF-61	0.00-28.0	0-1	NCD/CSD	31-32-12	7
3.	FORWARD CABIN ZONE TRIM VALVE	FCZV	57-10			3	DSCRT	ON/OF-53	0.00-28.0	0-1	NCD/CSD	31-32-12	8
4.	MID CABIN ZONE TRIM VALVE	MCZV	57-11			3	DSCRT	ON/OF-45	0.00-28.0	0-1	NCD/CSD	31-32-12	9
5.	AFT CABIN ZONE TRIM VALVE	ACZV	57-12			3	DSCRT	ON/OF-37	0.00-28.0	0-1	NCD/CSD	31-32-12	10
6.	GALLEY ZONE TRIM VALVE	GLZV	57-13			3	DSCRT	ON/OF-29	0.00-28.0	0-1	NCD/CSD	31-32-12	11
7.	TRIM SHUT OFF VALVE	TSOV	57-26			3	DSCRT	ON/OF-21	0.00-28.0	0-1	NCD/CSD	31-32-12	4
8.	APU ISOLATION VALVE	APIV	57-25			3	DSCRT	ON/OF-13	0.00-28.0	0-1	NCD/CSD	31-32-12	31
9.	VOR NO. 2 FLAG	VRF2	170-2			3	DSCRT	ON/OF-5	0.00-28.0	0-1	FLD/NFD		
222.	VOR DEVIATION NO. 1	VOR1	169-1	264		1	DCMV	DC-9,41	+/-100	000-999	A6		
223.	SERVO VALVE RETURN FLOW L.H. INBOARD AILERON A	SLIA	62-3	265		2	ACV	AC-26	2.20-11.0	186-932	SELF	31-32-11	5
224.	ON/OFF NO. 7	WDO7		266	038*	3	DSCRT	ON/OFF		000-377			
BIT								*DFDR	WILL READ	000-777			
1.													
2.	HOT MANIFOLD TEMPERATURE CONTROL VALVE PACK NO. 3	HMC3	57-20			3	DSCRT	ON/OF-62	0.00-28.0	0-1	NCD/CSD	31-32-12	3
3.	HOT MANIFOLD TEMPERATURE CONTROL VALVE PACK NO. 2	HMC2	57-19			3	DSCRT	ON/OF-54	0.00-28.0	0-1	NCD/CSD	31-32-12	3
4.	HYDRAULIC PRESSURE LO TO SYSTEM D	HYLD	177-4		038	3	DSCRT	ON/OF-46	0.00-28.0	0-1	LOW/NLO		
5.	FLIGHT DIRECTOR NO. 1	FLD1	183-1		038	3	DSCRT	ON/OF-38	-12-+28.0	0-1	SEL/NSL		
6.	FLIGHT DIRECTOR NO. 2	FLD2	183-2		038	3	DSCRT	ON/OF-30	-12-+28.0	0-1	SEL/NSL		
7.	FLARE CAPTURE (CAPTAINS ANNUNCIATOR)	FLCP	179-16		038	3	DSCRT	ON/OF-22	GND-28.0	0-1	CPT/NCP		
8.	TAKE OFF (CAPTAINS ANNUNCIATOR)	TKOC	179-17		038	3	DSCRT	ON/OF-14	GND-28.0	0-1	CPT/NCP		
9.	BATTERY BUS	BBUS	184-8		038	3	DSCRT	ON/OF-6	0.00-28.0	0-1	FLD/NFD		
225.	VOR DEVIATION NO. 2	VOR2	169-2	267		1	DCMV	DC-10,42	+/-100	000-999	A6		
226.	SERVO VALVE RETURN FLOW L.H. INBOARD AILERON B	SLIB	62-4	268		2	ACV	AC-33	2.20-11.0	186-932	SELF	31-32-11	5
227.	ON/OFF NO. 8	WDO8		269	009-057	3	DSCRT	ON/OFF		000-377			
BIT													
1.													
2.	LOCALIZER DEVIATION NO. 1 FLAG	LDF1	172-1			3	DSCRT	ON/OF-58	0.00-28.0	0-1	FLD/NFD		
3.	LOCALIZER DEVIATION NO. 2 FLAG	LDF2	172-2			3	DSCRT	ON/OF-50	0.00-28.0	0-1	FLD/NFD		
4.	GLIDE SLOPE DEVIATION NO. 1 FLAG	GDF1	173-1			3	DSCRT	ON/OF-42	0.00-28.0	0-1	FLD/NFD		
5.	GLIDE SLOPE DEVIATION NO. 2 FLAG	GDF2	173-2			3	DSCRT	ON/OF-34	0.00-28.0	0-1	FLD/NFD		
6.	RUDDER LIMITER	RULM	181-1		009	3	DSCRT	ON/OF-26	0.00-28.0	0-1	OFF/ON		
7.	AUTO THRUST	AUTH	182-1		057	3	DSCRT	ON/OF-18	0.00-28.0	0-1	OFF/ON		
8.	HYDRAULIC PRESSURE LO TO SYSTEM B	HYLB	177-2		057	3	DSCRT	ON/OF-10	0.00-28.0	0-1	LOW/NLO		
9.	HYDRAULIC PRESSURE LO TO SYSTEM C	HYLC	177-3		057	3	DSCRT	ON/OF-2	0.00-28.0	0-1	LOW/NLO		
228.	CABIN AIR FLOW PACK NO. 1	CAF1	18-1	270		1	DCV	DC-53	0.00-5.00	000-999	A6	31-32-10	1
229.	SERVO VALVE RETURN FLOW L.H. INBOARD AILERON C	SLIC	62-5	271		2	ACV	AC-34	2.20-11.0	186-932	SELF	31-32-11	5
230.	ON/OFF NO. 9	WDO9		272	036	3	DSCRT	ON/OFF		000-377			
BIT													
1.													
2.	LOCALIZER CAPTURE (FIRST OFFICERS ANNUNCIATOR)	LOCF	179-19			3	DSCRT	ON/OF-64	GND-28.0	0-1	CPT/NCP		
3.	GLIDESLOPE CAPTURE (FIRST OFFICERS ANNUNCIATOR)	GSCF	179-20			3	DSCRT	ON/OF-56	GND-28.0	0-1	CPT/NCP		

M1-0000-31-642

R
R AIDS PARAMETER SEQUENCE LIST
Table 101 (Sheet 9)

R EFFECTIVITY: ALL
R
0018

PARAMETERS			INPUT SIGNALS										
			LAC CODE	AIDS 563 TESTER CODE	OFDR 563 TESTER CODE	DAU NO.	SIGNAL TYPE	DAU CHANNEL NO.	INPUT SIGNAL RANGE	OUTPUT BCD RANGE	AIDS EXCIT-* REF. NO.	SECTION	SCHEM
BIT													
4.	AUTOLAND CAPTURE	(FIRST OFFICERS ANNUNCIATOR)	ALCF	179-21			3	DSCRT	ON/OF-48	GND-28.0	0-1	CPT/NCP	
5.	ALIGN CAPTURE	(FIRST OFFICERS ANNUNCIATOR)	AGCF	179-22			3	DSCRT	ON/OF-40	GND-28.0	0-1	CPT/NCP	
6.	FLARE CAPTURE	(FIRST OFFICERS ANNUNCIATOR)	FLCF	179-23			3	DSCRT	ON/OF-32	GND-28.0	0-1	CPT/NCP	
7.	TAKE OFF	(FIRST OFFICERS ANNUNCIATOR)	TKOF	179-24			3	DSCRT	ON/OF-24	GND-28.0	0-1	CPT/NCP	
8.	GO AROUND	(FIRST OFFICERS ANNUNCIATOR)	GORF	179-25			3	DSCRT	ON/OF-16	GND-28.0	0-1	CPT/NCP	
9.	GO AROUND	(CAPTAINS ANNUNCIATOR)	GORC	179-18			3	DSCRT	ON/OF-8	GND-28.0	0-1	CPT/NCP	
231.	CABIN AIR FLOW PACK NO. 2		CAF2	18-2	273		1	DCV	DC-54	0.00-5.00	000-999	A6	31-32-10	1
232.	SERVO VALVE RETURN FLOW L.H. SPOILER NO. 1 SYS. B		SLS1	62-6	274		2	ACV	AC-37	2.20-11.0	186-932	SELF	31-32-11	7
233.	ON/OFF NO. 10		WO10		275	025	3	DSCRT	ON/OFF		000-377			
BIT														
1.														
2.	FLIGHT STATION BUS FAIL AC NO. 1		BSF1	184-1			3	DSCRT	ON/OF-63	0.00-28.0	0-1	NFD/FLD		
3.	FLIGHT STATION BUS FAIL AC NO. 2		BSF2	184-2			3	DSCRT	ON/OF-55	0.00-28.0	0-1	NFD/FLD		
4.	FLIGHT STATION BUS FAIL AC NO. 3		BSF3	184-3			3	DSCRT	ON/OF-47	0.00-28.0	0-1	NFD/FLD		
5.	DC STANDBY BUS FAIL		DSYF	184-4			3	DSCRT	ON/OF-39	0.00-28.0	0-1	NFD/FLD		
6.	AC STANDBY BUS FAIL		ASYF	184-5			3	DSCRT	ON/OF-31	0.00-28.0	0-1	NFD/FLD		
7.	AC ESSENTIAL BUS FAIL		ACEF	184-6			3	DSCRT	ON/OF-23	0.00-28.0	0-1	NFD/FLD		
8.	DC ESSENTIAL BUS FAIL		DCEF	184-7			3	DSCRT	ON/OF-15	0.00-28.0	0-1	NFD/FLD		
9.	BUS FAIL DC NO. 3		FDC3	184-11			3	DSCRT	ON/OF-7	0.00-28.0	0-1	NFD/FLD		
234.	CABIN AIR FLOW PACK NO. 3		CAF3	18-3	276		1	DCV	DC-55	0.00-5.00	000-999	A6	31-32-10	1
235.	SERVO VALVE RETURN FLOW STABILIZER SYSTEM B		SSSB	62-24	277		2	ACV	AC-30	2.20-11.0	186-932	SELF	31-32-11	9
236.	MIDDLE MARKER (RADIO ALTITUDE NO. 1)		MDMK	152-1	278		1	DSCRT	VIBMK	0.0/6.0	000-990		31-32-10	30
237.	SERVO VALVE RETURN FLOW L.H. SPOILER NO. 2 SYS. A		SLS2	62-7	279		2	ACV	AC-6	2.20-11.0	186-932	SELF	31-32-11	7
238.	LONGITUDINAL ACCELERATION		LGAC	17-1	280		1	DCV	DC-27	0.20-5.00	040-999	*-28-A6	31-32-10	16
239.	SERVO VALVE RETURN FLOW L.H. SPOILER NO. 3 SYS. C		SLS3	62-8	281		2	ACV	AC-7	2.20-11.0	186-932	SELF	31-32-11	7
240.	FLAP POSITION R.H. OUTBOARD		FPRO	47-1	282	059	1	SYN	AC-10	000-277	000-770	A1	31-32-10	10
241.	SERVO VALVE RETURN FLOW L.H. SPOILER NO. 4 SYS. B		SLS4	62-9	283		2	ACV	AC-8	2.20-11.0	186-932	SELF	31-32-11	7
242.	FLAP POSITION L.H. OUTBOARD		FPLO	47-2	284	064	1	SYN	AC-13	000-277	000-770	A1	31-32-10	10
243.	SERVO VALVE RETURN FLOW L.H. SPOILER NO. 5 SYS. C		SLS5	62-10	285		2	ACV	AC-13	2.20-11.0	186-932	SELF	31-32-11	7
244.	SLAT POSITION		SLPN	96-15	286	061	1	SYN	AC-17	000-164	000-455	A1	31-32-10	12
245.	SERVO VALVE RETURN FLOW L.H. SPOILER NO. 6 SYS. B		SLS6	62-11	287		2	ACV	AC-14	2.20-11.0	186-932	SELF	31-32-11	7
246.	ON/OFF NO. 11		WO11		288		1	DSCRT	ON/OFF		000-377			
BIT														
1.														
2.	SLAT EXTENDED L.H. WING, NO. 1		SEL1	96-1			1	DSCRT	ON/OF-58	0.00-28.0	0-1	NEX/EXT	31-32-10	18
3.	SLAT EXTENDED L.H. WING, NO. 2		SEL2	96-2			1	DSCRT	ON/OF-50	0.00-28.0	0-1	NEX/EXT	31-32-10	18
4.	SLAT EXTENDED L.H. WING, NO. 3		SEL3	96-3			1	DSCRT	ON/OF-42	0.00-28.0	0-1	NEX/EXT	31-32-10	18
5.	SLAT EXTENDED L.H. WING, NO. 4		SEL4	96-4			1	DSCRT	ON/OF-34	0.00-28.0	0-1	NEX/EXT	31-32-10	18
6.	SLAT EXTENDED L.H. WING, NO. 5		SEL5	96-5			1	DSCRT	ON/OF-26	0.00-28.0	0-1	NEX/EXT	31-32-10	18
7.	SLAT EXTENDED L.H. WING, NO. 6		SEL6	96-6			1	DSCRT	ON/OF-18	0.00-28.0	0-1	NEX/EXT	31-32-10	18
8.	SLAT EXTENDED L.H. WING, NO. 7		SEL7	96-7			1	DSCRT	ON/OF-10	0.00-28.0	0-1	NEX/EXT	31-32-10	18
9.	CMD MODE A		CMDA	176-1		044	1	DSCRT	ON/OF-2	0.00-28.0	0-1	NEG/ENG		
247.	SERVO VALVE RETURN FLOW R.H. OUTBOARD AILERON B		SROB	62-12	289		2	ACV	AC-11	2.20-11.0	186-932	SELF	31-32-11	6
248.	CAPTAINS ALTIMETER FINE		CPAF	187-1	290	008	1	SYN	AC-25	000-360	000-999	A1		

M1-0000-31-643

R
R AIDS PARAMETER SEQUENCE LIST
Table 101 (Sheet 10)

R EFFECTIVITY: ALL
R
001B

PARAMETERS			INPUT SIGNALS										
			LAC CODE	AIDS 563 TESTER CODE	DFDR 563 TESTER CODE	DAU NO.	SIGNAL TYPE	DAU CHANNEL NO.	INPUT SIGNAL RANGE	OUTPUT BCD RANGE	AIDS EXCIT-* REF. NO.	SECTION	SCHEM
249.	FIRST OFFICERS ALTIMETER FINE	FOAF	187-2	291	010	3	SYN	AC-25	000-360	~~000-999~~	A6		
250.	ON/OFF NO. 12	WD12		292		1	DSCRT	ON/OFF		000-377			
BIT													
1.													
2.	SLAT EXTENDED R.H. WING, NO. 7	SER7	96-14			1	DSCRT	ON/OF-59	0.00-28.0	0-1	NEX/EXT	31-32-10	19
3.	SLAT EXTENDED R.H. WING, NO. 6	SER6	96-13			1	DSCRT	ON/OF-51	0.00-28.0	0-1	NEX/EXT	31-32-10	19
4.	SLAT EXTENDED R.H. WING, NO. 5	SER5	96-12			1	DSCRT	ON/OF-43	0.00-28.0	0-1	NEX/EXT	31-32-10	19
5.	SLAT EXTENDED R.H. WING, NO. 4	SER4	96-11			1	DSCRT	ON/OF-35	0.00-28.0	0-1	NEX/EXT	31-32-10	19
6.	SLAT EXTENDED R.H. WING, NO. 3	SER3	96-10			1	DSCRT	ON/OF-27	0.00-28.0	0-1	NEX/EXT	31-32-10	19
7.	SLAT EXTENDED R.H. WING, NO. 2	SER2	96-9			1	DSCRT	ON/OF-19	0.00-28.0	0-1	NEX/EXT	31-32-10	19
8.	SLAT EXTENDED R.H. WING, NO. 1	SER1	96-8			1	DSCRT	ON/OF-11	0.00-28.0	0-1	NEX/EXT	31-32-10	19
9.	VOR NO. 1 FLAG	VRF1	170-1			1	DSCRT	ON/OF-3	0.00-28.0	0-1	NFD/FLD		
251.	SERVO VALVE RETURN FLOW R.H. OUTBOARD AILERON D	SROD	62-13	293		2	ACV	AC-12	2.20-11.0	186-932	SELF	31-32-11	6
252.	HARD LANDING INDICATION R.H. GEAR	HLIR	5-1	294		1	DCV	DC-17	0.00-5.00	000-999	A6	31-32-10	17
253.	SERVO VALVE RETURN FLOW R.H. INBOARD AILERON B	SRIB	62-14	295		2	ACV	AC-19	2.20-11.0	186-932	SELF	31-32-11	6
254.	HARD LANDING INDICATION L.H. GEAR	HLIL	5-3	296		1	DCV	DC-18	0.00-5.00	000-999	A6	31-32-10	17
255.	SERVO VALVE RETURN FLOW R.H. INBOARD AILERON C	SRIC	62-15	297		2	ACV	AC-20	2.20-11.0	186-932	SELF	31-32-11	6
256.	HARD LANDING INDICATION NOSE GEAR	HLIN	5-5	298		1	DCV	DC-19	0.00-5.00	000-999	A6	31-32-10	17
257.	SERVO VALVE RETURN FLOW R.H. INBOARD AILERON D	SRID	62-16	299		2	ACV	AC-27	2.20-11.0	186-932	SELF	31-32-11	6
258.	GROSS WEIGHT	GW	6-1	300		1	DCV	DC-24	0.00-5.00	000-999	A6	31-32-10	17
259.	SERVO VALVE RETURN FLOW R.H. SPOILER NO. 1 SYS. B	SRS1	62-17	301		2	ACV	AC-40	2.20-11.0	186 932	SELF	31-32-11	8
260.	CENTER OF GRAVITY	CG	7-1	302		1	DCV	DC-28	0.00-5.00	000-999	A6	31-32-10	17
261.	SERVO VALVE RETURN FLOW R.H. SPOILER NO. 2 SYS. D	SRS2	62-18	303		2	ACV	AC-15	2.20-11.0	186-932	SELF	31-32-11	8
262.	ON/OFF NO. 13	WD13		304	057	1	DSCRT	ON/OFF		000-377			
BIT													
1.													
2.	MICROPHONE OPERATION VHF NO. 1	MVH1	160-1		057	1	DSCRT	ON/OF-62	GND-28.0	0-1	ON/OFF	31-32-10	4
3.	MICROPHONE OPERATION VHF NO. 2	MVH2	160-2		057	1	DSCRT	ON/OF-54	GND-28.0	0-1	ON/OFF	31-32-10	4
4.	MICROPHONE OPERATION VHF NO. 3	MVH3	160-3		057	1	DSCRT	ON/OF-46	GND-28.0	0-1	ON/OFF	31-32-10	4
5.	MICROPHONE OPERATION HF NO. 1	MHF1	160-4		057	1	DSCRT	ON/OF-38	GND-28.0	0-1	ON/OFF	31-32-10	4
6.	MICROPHONE OPERATION HF NO. 2	MHF2	160-5		057	1	DSCRT	ON/OF-30	GND-28.0	0-1	ON/OFF	31-32-10	4
7.	ALIGN CAPTURE (CAPTAINS ANNUNCIATOR)	AGCC	179-15		057	1	DSCRT	ON/OF-22	GND-28.0	0-1	CPT/NCP		
8.	GLIDESLOPE WARNING (GROUND PROXIMITY)	GSWN	185-3			1	DSCRT	ON/OF-14	GND-28.0	0-1	ON/OFF		
9.	ALTITUDE REPORTING SYSTEM NO. 1/2	AR12	175-1			1	DSCRT	ON/OF-6	GND-OPEN	0-1	1/2		
263.	SERVO VALVE RETURN FLOW R.H. SPOILER NO. 3 SYS. C	SRS3	62-19	305		2	ACV	AC-5	2.20-11.0	186-932	SELF	31-32-11	8
264.	ON/OFF NO. 14	WD14		306	044	1	DSCRT	ON/OFF		000-777			
BIT													
1.	INSTRUMENT APPROACH	INAP				CEU	DIGITAL			0-1			
2.	AUTOLAND (GLARE SHIELD)	AULG	179-6		044	1	DSCRT	ON/OF-64	GND-28.0	0-1	SEL/NSL		
3.	APPROACH (GLARE SHIELD)	APPG	179-7		044	1	DSCRT	ON/OF-56	GND-28.0	0-1	SEL/NSL		
4.	LOCALIZER (GLARE SHIELD)	LOCG	179-8		044	1	DSCRT	ON/OF-48	GND-28.0	0-1	SEL/NSL		
5.	NAV (GLARE SHIELD)	NAVG	179-9		044	1	DSCRT	ON/OF-40	GND-28.0	0-1	SEL/NSL		
6.	LOCALIZER CAPTURE (CAPTAINS ANNUNCIATOR)	LOCC	179-10		044	1	DSCRT	ON/OF-32	GND-28.0	0-1	CPT/NCP		
7.	GLIDESLOPE CAPTURE (CAPTAINS ANNUNCIATOR)	GSCC	179-13		044	1	DSCRT	ON/OF-24	GND-28.0	0-1	CPT/NCP		
8.	AUTOLAND CAPTURE (CAPTAINS ANNUNCIATOR)	ALCC	179-14		044	1	DSCRT	ON/OF-16	GND-28.0	0-1	CPT/NCP		

M1-0000-31-644

R AIDS PARAMETER SEQUENCE LIST
R Table 101 (Sheet 11)

R EFFECTIVITY: ALL
R
001B

PARAMETERS			INPUT SIGNALS										
			LAC CODE	AIDS 563 TESTER CODE	DFDR 563 TESTER CODE	DAU NO.	SIGNAL TYPE	DAU CHANNEL NO.	INPUT SIGNAL RANGE	OUTPUT BCD RANGE	AIDS EXCIT-* REF. NO.	SECTION	SCHEM
BIT 9.	DFDR MAINTENANCE FLAG	DFMF	188-1			1	DSCRT	ON/OF-8	GND-OPEN	0-1	NFD/FLD		
265.	SERVO VALVE RETURN FLOW R.H. SPOILER NO.4 SYS.	SRS4	62-20	307		2	ACV	AC-21	2.20-11.(	186-932	SELF	31-32-11	8
266.	CEU MOD IDENTIFIER	CEMI		308		CEU	DIGITAL			000-777			
267.	ON/OFF NO. 15	WD15		309	055	1	DSCRT	ON/OFF		000-377			
BIT 1.													
2.	VERTICAL SPEED (GLARE SHIELD)	VTSG	179-1		055	1	DSCRT	ON/OF-61	GND-28.0	0-1	SEL/NSL		
3.	INDICATED AIRSPEED (GLARE SHIELD)	IASG	179-2		055	1	DSCRT	ON/OF-53	GND-28.0	0-1	SEL/NSL		
4.	MACH (GLARE SHIELD)	MCHG	179-3		055	1	DSCRT	ON/OF-45	GND-28.0	0-1	SEL/NSL		
5.	HEADING (GLARE SHIELD)	HDGG	179-4		055	1	DSCRT	ON/OF-37	GND-28.0	0-1	SEL/NSL		
6.	TURBULENCE (GLARE SHIELD)	TRBG	179-5		055	1	DSCRT	ON/OF-29	GND-28.0	0-1	SEL/NSL		
7.	THRUST REVERSER IN TRANSIT ENGINE NO.3	TRT3	36-3		055	1	DSCRT	ON/OF-21	0.00-14.0	0-1	NIT/ITN	31-32-10	22
8.	THRUST REVERSER IN TRANSIT ENGINE NO.2	TRT2	36-2		055	1	DSCRT	ON/OF-13	0.00-14.0	0-1	NIT/ITN	31-32-10	22
9.	THRUST REVERSER IN TRANSIT ENGINE NO.1	TRT1	36-1		055	1	DSCRT	ON/OF-5	0.00-14.0	0-1	NIT/ITN	31-32-10	22
268.	SERVO VALVE RETURN FLOW R.H. SPOILER NO.5 SYS. C	SRS5	62-21	310		2	ACV	AC-22	2.20-11.0	186-932	SELF	31-32-11	8
269.	RADIO ALTITUDE NO.2 (3RD)	RA23	117-2	311		3	DCV	DC-26	0.00-4.95	000-990	A6	31-32-12	22
270.	ON/OFF NO.16 (TREND RECORDING CUES)	WD16		312	009	1	DSCRT	ON/OFF		000-377			
BIT 1.													
2.	DEVIATION INDICATION ALTITUDE SELECT CAPTURE	DIAC	174-1			1	DSCRT	ON/OF-63	GND-28.0	0-1	CPT/NCP		
3.	DEVIATION INDICATION ALTITUDE SELECT DEVIATION	DIAD	174-2			1	DSCRT	ON/OF-55	GND-28.0	0-1	DEV/NDV		
4.	AIR/GROUND SENSOR	AGSR	06-2		009	1	DSCRT	ON/OF-47	0.00-28.0	0-1	AIR/GRND	31-32-10	21
5.	LANDING GEAR DN/LK	LGDL	06-1		009	1	DSCRT	ON/OF-39	0.00-14.0	0-1	DL/NDL	31-32-10	20
6.	PITCH COMPUTER ALTITUDE HOLD (GLARE SHIELD)	PCAH	Q4		009	1	DSCRT	ON/OF-31	GND-28.0	0-1	ENG/NEG		
7.	ALTITUDE SELECT ARM (GLARE SHIELD)	ALSA	179-11		009	1	DSCRT	ON/OF-23	GND-28.0	0-1	SEL/NSL		
8.	TAKE OFF	TKFF	Q-2			1	DSCRT	ON/OF-15	0.00-28.0	0-1	TKO/NTK	31-32-10	23
9.	ENGINE START	ENST	Q-1			1	DSCRT	ON/OF-7	0.00-28.0	0-1	NST/STRT	31-32-10	13
271.	SERVO VALVE RETURN FLOW R.H. SPOILER NO.6 SYS. B	SRS6	62-22	313		2	ACV	AC-23	2.20-11.0	186-932	SELF	31-32-11	8
272.	COMPUTED AIRSPEED NO.2 (3RD)	CAZ3	3-2	314	060	3	SYN	AC-16	000-360	000-999	A6	31-32-10	25
273.	SERVO VALVE RETURN FLOW STABILIZER SYSTEM A	SSSA	62-23	315		2	ACV	AC-29	2.20-11.0	186-932	SELF	31-32-11	9
274.	NOSE GEAR STEERING	NGS	62-32	316		3	ACV	AC-5	2.20-11.0	186-932	SELF	31-32-11	4
275.	SERVO VALVE RETURN FLOW STABILIZER SYSTEM C	SSSC	62-25	317		2	ACV	AC-31	2.20-11.0	186-932	SELF	31-32-11	9
276.	SERVO VALVE RETURN FLOW STABILIZER SYSTEM D	SSSD	62-26	318		2	ACV	AC-32	2.20-11.0	186-932	SELF	31-32-11	9
277.	SERVO VALVE RETURN FLOW RUDDER SYSTEM B	SRSB	62-27	319		2	ACV	AC-28	2.20-11.0	186-932	SELF	31-32-11	9
278.	SERVO VALVE RETURN FLOW RUDDER SYSTEM C	SRSC	62-28	320		2	ACV	AC-35	2.20-11.0	186-932	SELF	31-32-11	9
279.	SERVO VALVE RETURN FLOW RUDDER SYSTEM A	SRSA	62-29	321		2	ACV	AC-36	2.20-11.0	186-932	SELF	31-32-11	9
280.	SERVO VALVE RETURN FLOW DIRECT LIFT CONTROL NO.1	SDL1	62-30	322		2	ACV	AC-24	2.20-11.0	[illegible]-932	SELF	31-32-11	4
281.	SERVO VALVE RETURN FLOW DIRECT LIFT CONTROL NO.2	SDL2	62-31	323		2	ACV	AC-16	2.20-11.0	186-932	SELF	31-32-11	4
282.	CEU SERIAL NUMBER	CESN		324		CEU	DIGITAL			201-299			
283.	LANDING GEAR IN-TRANSIT NOSE (TIME)	LGTN	68-1	325	058	2	DSCRT	ON/OF-1	0.00-28.0	000-999	1-CT/SEC	31-32-11	12
284.	LANDING GEAR IN-TRANSIT L.H. MAIN (TIME)	LGTL	68-2	326	058	2	DSCRT	ON/OF-9	0.00-28.0	000-999	1-CT/SEC	31-32-11	12
285.	LANDING GEAR IN-TRANSIT R.H. MAIN (TIME)	LGTR	68-3	327	058	2	DSCRT	ON/OF-17	0.00-28.0	000-999	1-CT/SEC	31-32-11	12
286.	V2-CAS - CAL. VREF	CALV		328									
287.	OLD MAG HEADING	OMGH		329									

MI-0000-31-645

PARAMETERS			INPUT SIGNALS										
			LAC CODE	AIDS 563 TESTER CODE	DFDR 563 TESTER CODE	DAU NO.	SIGNAL TYPE	DAU CHANNEL NO.	INPUT SIGNAL RANGE	OUTPUT BCD RANGE	AIDS EXCIT-* REF. NO.	SECTION	SCHEM
288.	ON/OFF NO. 18	WD18		330		2	DSCRT	ON/OFF		000 207			
BIT 1.													
2.	L-1011-100	L100	186-1			2	DSCRT	ON/OF-57	0.00-28.0	0-1	NO/YES		
3.													
4.													
5.													
6.													
7.	LANDING GEAR IN TRANSIT R.H. MAIN	LGIR	68-3		058	2	DSCRT	ON/OF-17	0.00-28.0	0-1	NIT/ITN	31-32-10	20
8.	LANDING GEAR IN TRANSIT L.H. MAIN	LGIL	68-2		058	2	DSCRT	ON/OF-9	0.00-28.0	0-1	NIT/ITN	31-32-10	20
9.	LANDING GEAR IN TRANSIT NOSE	LGIN	68-1		058	2	DSCRT	ON/OF-1	0.00-28.0	0-1	NIT/ITN	31-32-10	20
289	AIDS SPARE DATA WORD NO. 1	AS01		331									
290.	AIDS SPARE DATA WORD NO. 2	AS02		332									
291.	AIDS SPARE DATA WORD NO. 3	AS03		333									
292.	AIDS MALFUNCTION CODES	WD17		334		CEU	DIGITAL			000-735			
BIT 1.													
2.													
3.	DIGITAL FLIGHT DATA RECORDER - DFDR	DFDR				CEU	DIGITAL		DFDR FAIL	0-1	NFD/FLD		
4	INCREMENTAL RECORDER - IR	INCR				CEU	DIGITAL		IR FAIL	0-1	NFD/FLD		
5.	HISTORY RECORDER - CLR	CLPR				CEU	DIGITAL		CLR FAIL	0-1	NFD/FLD		
6.	CEU	CEUF				CEU	DIGITAL		CEU FAIL	0-1	NFD/FLD		
7.	DAU NO. 3	DAU3				CEU	DIGITAL		DAU FAIL	0-1	NFD/FLD		
8.	DAU NO. 2	DAU2				CEU	DIGITAL		DAU FAIL	0-1	NFD/FLD		
9.	DAU NO. 1	DAU1				CEU	DIGITAL		DAU FAIL	0-1	NFD/FLD		
	END OF DATA FRAME CHARACTER NO. 4 X'EC1'	EDF4		335		CEU	DIGITAL			HEX 1			

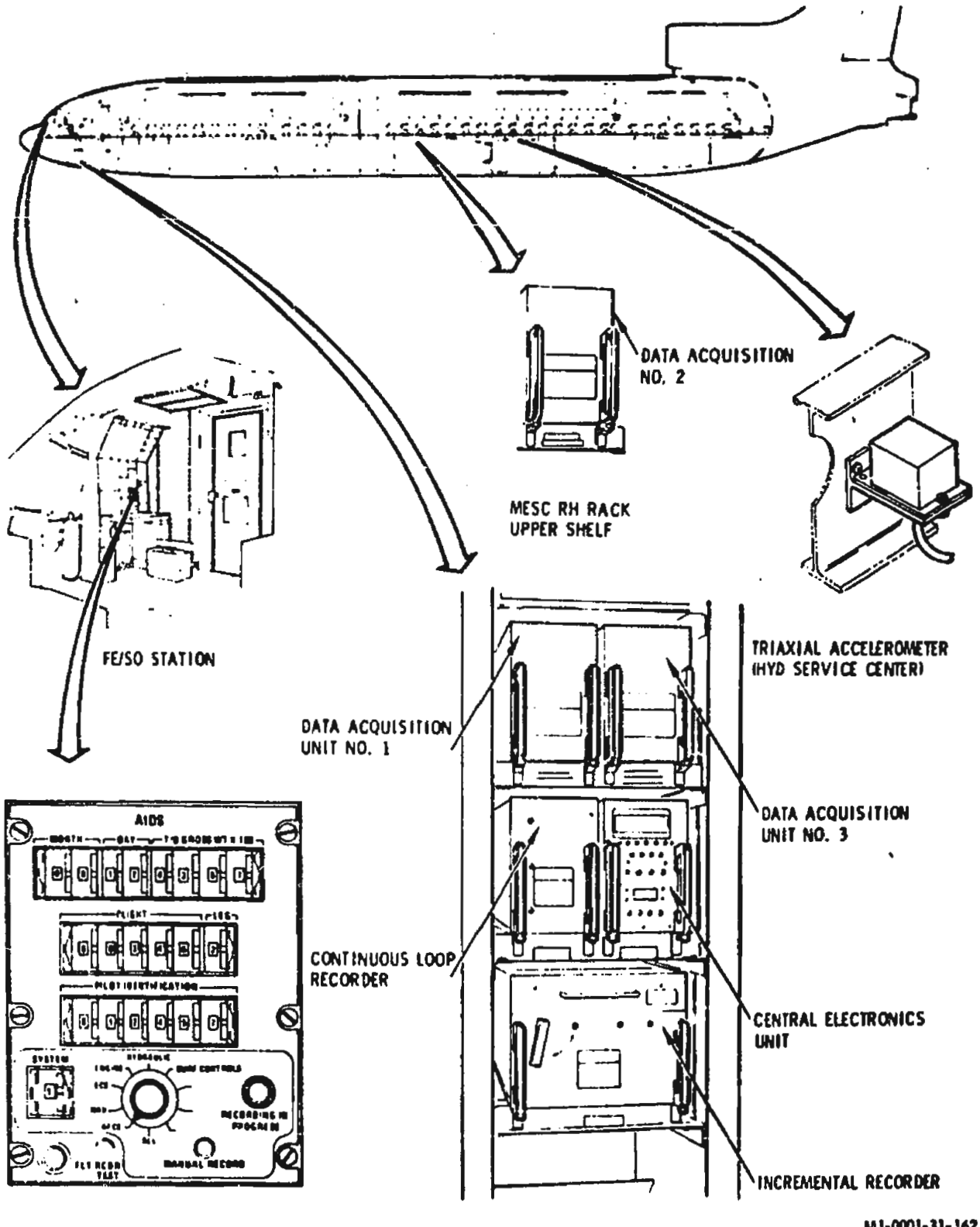
M1-0000-31-646

COMPONENT	QTY	AREA/ACCESS	REFERENCE
ACCELEROMETER – TRIAXIAL	1	HSC, CEILING FWD CTR/147AB	31-31-04
CIRCUIT BREAKERS:			
AIDS/FLT RCDR DC 3130-CB1	1	FE/SO, AFT CB PNL/CB3	*
AIDS/FLT RCDR A0 3130-CB4	1	FE/SO, AFT CB PNL/CB3	*
AIDS/FLT RCDR B0 3130-CB3	1	FE/SO, AFT CB PNL/CB3	*
AIDS/FLT RCDR C0 3130-CB2	1	FE/SO, AFT CB PNL/CB3	*
RECORDER – CONTINUOUS LOOP	1	FESC, LH RACK/112AB	31-32-05
RECORDER – INCREMENTAL	1	FESC, LH RACK/112AB	31-32-04
UNIT – CENTRAL ELECTRONICS	1	FESC, LH RACK/112AB	31-32-01
UNIT – DATA ACQUISITION NO. 1 & 3	2	FESC, LH RACK/112AB	31-32-03
UNIT – DATA ACQUISITION NO. 2	1	MESC, RH RACK/192K	31-32-03
UNIT – FLIGHT DATA ENTRY AND AIDS CONTROL	1	FLT STA/P12	31-32-02

*SEE WM EQUIPMENT LIST

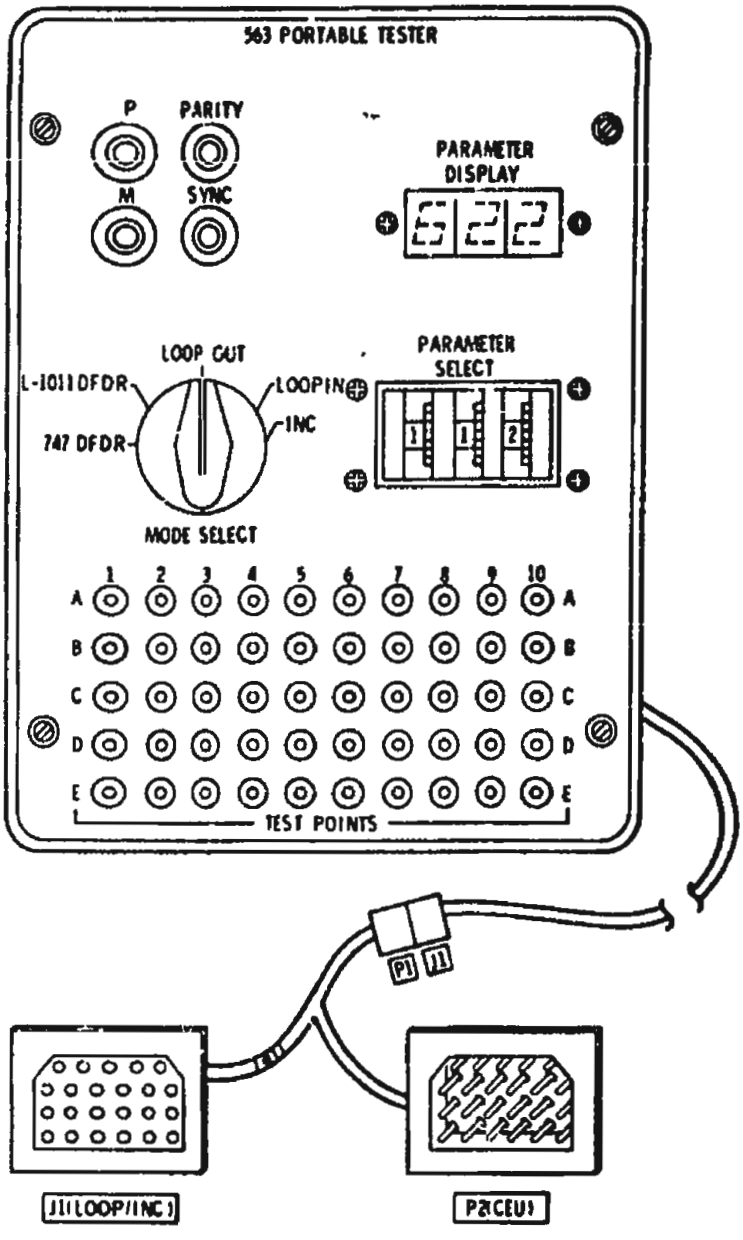
M1-0000-31-116

Component Location Index
Figure 101



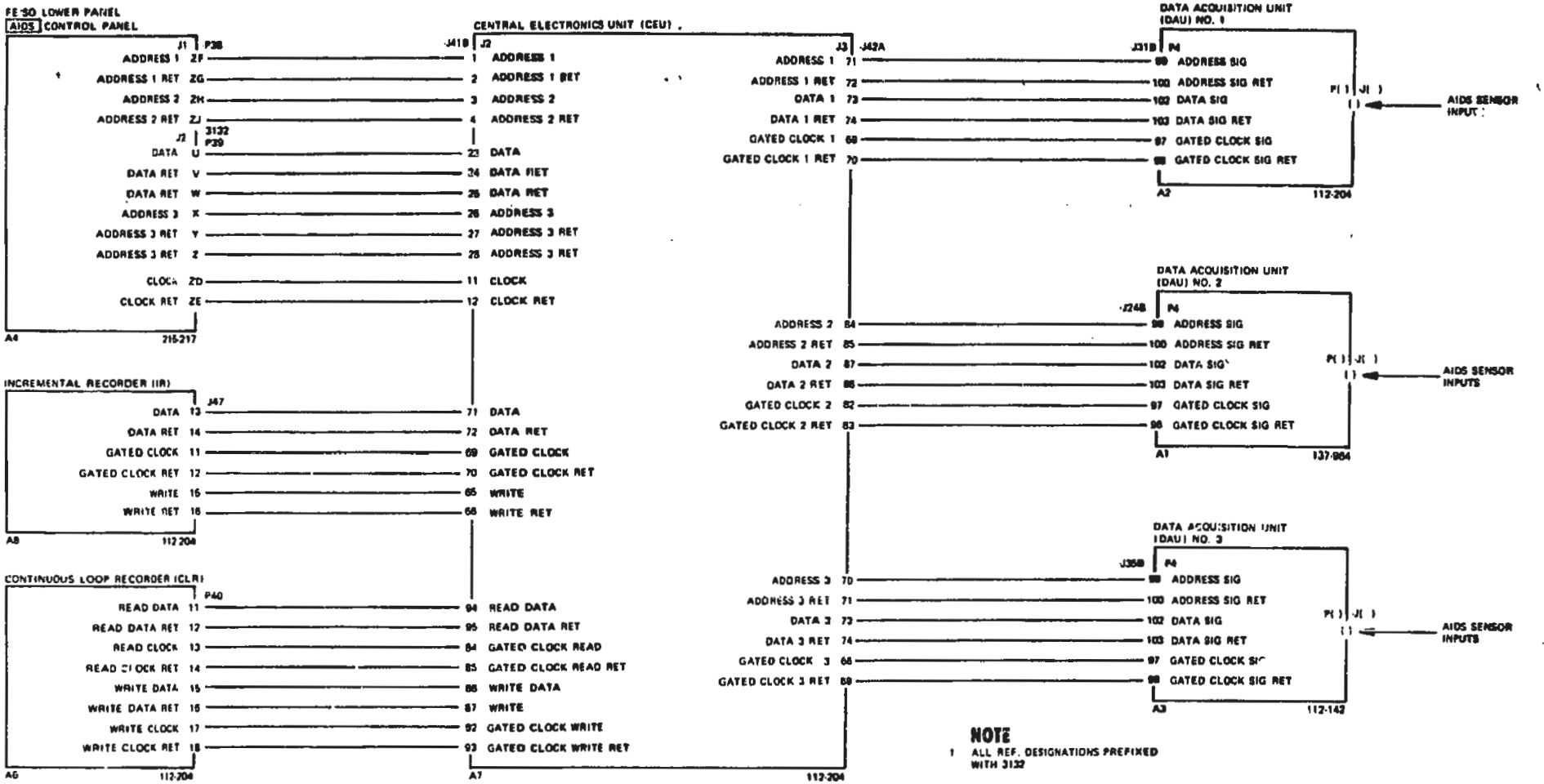
R AIDS Component Location
R Figure 102

R EFFECTIVITY: ALL
R
0018



MI-5000-31-897

Model 563 AIDS/DFDR Portable Tester
Figure 103



C 3082
EM1-5000-31 001

AIDS System Schematic
SCHEM 1

R
R
0018 EFFECTIVITY: ALL

AIRCRAFT INTEGRATED DATA SYSTEM - ADJUSTMENT AND TEST

1. Referenced Procedures

R 21-00-00 Air Conditioning System - Maintenance Practices

2. Adjustment/Test

CR A. Operational Test (aircraft with ACARS installed).

(1) On Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215, verify that following circuit breakers are closed:

AIDS/FLT RCDR - DC (H10), phase A (H11), phase B (H12), and phase C (H13)

(2) Verify that central electronics unit (CEU) is receiving cooling air (Ref. 21-00-00).

(3) Momentarily depress FLT RCDR switchlight on waste water
CR control panel and verify that OFF light goes out within
CR 15 seconds.

CR (4) On CEU, verify that all panel lights come on when TEST - LAMP pushbutton light is held depressed.

CR (5) Verify that TEST - ON light blinks when TEST - SELF pushbutton light is depressed.

CR (6) While holding TEST - SELF pushbutton light depressed, verify that DAU 1,2, and 3, IR,CEU,CLR, and FDR malfunction (BITE) lamps remain out.

CR (7) Release TEST - SELF pushbutton light and verify that TEST - ON light goes out.

CR (8) Momentarily depress the FLT RCDR switchlight on the Waste Water Control Panel to release it to the off position. Verify that the OFF light comes on.

CENTRAL ELECTRONICS UNIT (CEU) - REMOVAL AND INSTALLATION

1. Referenced Procedure

R	20-23-02	Rack Mounted ARINC Box Latch Levers - Maintenance
R		Practices
R	31-32-00	Aircraft Integrated Data System - Adjustment and
R		Test

R 2. Removal/Installation

A. Removal

(1) On Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215, open and tag circuit breakers AIDS/FLT RCDR - DC, phase A, phase B, and phase C.

(2) Locate central electronics unit (CEU) on aircraft integrated data system (AIDS) equipment rack in forward electronic service center, zone 111.

(3) R Depress locking lever releases on CEU handles, and pull levers down to release latches and disengage electrical connectors.

(4) Using handles, slide CEU out of mounting tray.

(5) Return locking levers to stowed position in handles.

B. Installation

(1) Verify that circuit breakers opened in Step 2A(1) are open and tagged.

(2) Install CEU on AIDS equipment rack mounting tray and carefully slide CEU aft until connector guide pins engage.

(3) R Depress locking lever releases in CEU handles and pull levers down to engage Camloc latches (Ref. 20-23-02).

(4) Return locking levers to stowed position.

(5) Remove tags and close circuit breakers opened in Step 2A(1).

(6) Set GMT digital readout to correct time by depressing and holding the GMT DISPL pushbutton and depressing and

releasing GMT SLEW pushbuttons as required to set correct GMT time.

(7) Perform Aircraft Integrated Data System Adjustment and Test Procedure (Ref. 31-32-00).

R # CENTRAL ELECTRONICS UNIT (CEU) - ADJUSTMENT AND TEST

R 1. Referenced Procedures

R 21-00-00 Air Conditioning System - Maintenance Practices

R 24-41-00 External Power/Ground Service System - Maintenance Practices

R 31-41-00 Central Electronics Unit (CEU) - Removal and Installation

R 2. Adjustment/Test

R A. GMT Clock Set Procedure

R Resetting of the CEU clock is necessary whenever the unit is replaced or has been without aircraft power for 30 hours or more.

R (1) Turn on electrical power (Ref. 24-41-00).

R (2) Verify that POWER OVERRIDE switch, located above the CEU, is in the OFF position.

R (3) Verify that CEU is receiving cooling air (Ref. 21-00-00).

R (4) Verify that AIDS/FLT RCDR - DC, phase A, phase B, and phase C circuit breakers are closed.

R (5) Set POWER OVERRIDE switch to AIDS ONLY position.

R (6) On the CEU, press LAMP TEST switch and verify that all 211 lamps, except PPR, come on. Release switch.

R (7) Hold GMT DISP switch depressed and verify that GMT digital readout indicator comes on.

R (8) While holding GMT DISP switch depressed, use the GMT SLEW switches to set digital indicator numerical display to correct GMT time-of-day. Release GMT DISP switch.

R (9) Set POWER OVERRIDE switch to center OFF position.

R (10) Turn off electrical power (Ref. 24-41-00).

AIDS CONTROL UNIT - REMOVAL AND INSTALLATION

NOTE: Service Bulletin 31-023 installed a modified AIDS control unit, serial number 137, in aircraft serial number 010. This control unit is changed internally for operational requirements involving the Rolls-Royce surge detector. Using an unmodified AIDS control unit in aircraft serial number 010 will result in loss of surge occurrence data.

1. Removal/Installation

A. Removal

(1) On Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215, open and tag the following circuit breakers:

R 5 VAC FLT ENGR PANEL LIGHTS - LOWER - NO. 3 (CC18)

R AIDS/FLT RCDR - DC (H10)

R AIDS/FLT RCDR - phase A (H11), phase B (H12), and
R phase C (H13)

(2) At Flight Engineer/Second Officers lower panel, zone 215, release quick-disconnect fasteners on front panel of control unit.

(3) Pull control unit out of panel.

(4) Disconnect two electrical connectors at rear of control unit.

B. Installation

(1) Verify that circuit breakers opened in Step A(1) are open and tagged.

(2) Connect two electrical connectors at rear of control unit.

(3) Insert control unit into panel and secure quick-disconnect fasteners on front of control unit panel.

(4) Remove tags and close circuit breakers opened in Step A(1).

(5) Perform Aircraft Integrated Data System Adjustment and Test procedure (Ref. 31-32-00).

DATA ACQUISITION UNITS (DAU NO. 1, NO. 2, AND NO. 3) - REMOVAL AND INSTALLATION

1. General

Steps 2A and 2B are applicable for removal and installation of data acquisition unit (DAU) No. 1 or No. 3. Steps 2C and 2D are applicable for removal and installation of DAU No.2.

R 2. Referenced Procedures

R	20-23-02	Rack Mounted ARINC Box Latch Lever - Maintenance
R		Practices
R	31-32-00	Aircraft Integrated Data System - Adjustment and
R		Test

R 3. Removal/Installation

A. Removal - DAU No. 1 or 3

(1) On Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215, open and tag circuit breakers AIDS FLT/RCDR - DC, phase A, phase B, and phase C.

(2) Locate DAU forward electronic service center, zone 110.

R (3) Depress locking lever releases in DAU handles and pull levers down to release latches and disengage electrical connectors at the rear of DAU.

(4) Using the handles, slide DAU out of mounting tray.

(5) Return locking levers to their stowed positions in the handles.

B. Installation DAU No. 1 or 3

R (1) Verify that circuit breakers opened in Step 3A(1) are open and tagged.

(2) Install DAU on AIDS equipment rack mounting tray and carefully slide DAU aft until connector guide pins engage.

R (3) Depress locking lever releases in DAU handles and pull levers down to engage latches (Ref. 20-23-02).

(4) Return locking levers to their stowed positions.

R (5) Remove tags and close circuit breakers opened in Step
R 3A(1).

(6) Perform Aircraft Integrated Data System Adjustment and Test procedure (Ref. 31-32-00).

C. Removal - DAU No. 2

(1) On Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215, open and tag circuit breakers AIDS FLT/RCDR - DC, phase A, phase B, and phase C.

(2) Locate DAU No. 3 on the right-hand equipment rack in the mid electrical service center (MESC), zone 137.

(3) Depress locking lever releases in DAU handles and pull
R levers down to release latches and disengage electrical connectors at rear of DAU.

(4) Using the handles, slide DAU out of mounting tray.

(5) Return locking levers to their stowed positions in the handles.

D. Installation - DAU No. 2

R (1) Verify that circuit breakers opened in Step 3C(1) are open and tagged.

(2) Install DAU on right-hand equipment rack mounting tray in MESC and carefully slide DAU aft until the connector guide pins engage.

(3) Depress locking lever releases in DAU handles and pull
R levers down to engage latches (Ref. 20-23-02).

(4) Return locking levers to their stowed positions.

R (5) Remove tags and close circuit breakers opened in Step
R 3C(1).

(6) Perform Aircraft Integrated Data System Adjustment and Test procedure (Ref. 31-32-00).

INCREMENTAL RECORDER - REMOVAL AND INSTALLATION

R 1. Referenced Procedures

R	20-23-02	Rack Mounted ARINC Box Latch Lever - Maintenance
R		Practices
R	31-32-00	Aircraft Intergrated Data System - Adjustment and
R		Test

R 2. Removal/Installation

A. Removal

(1) On Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215, open and tag circuit breakers AIDS/FLT RCDR - DC, phase A, phase B, and phase C.

(2) In the forward electronic service center, zone 112, locate the incremental recorder (IC) on the lower shelf of the aircraft integrated data system (AIDS) equipment rack.

R (3) Depress locking lever releases in IC handles and pull levers down to release latches, and disengage electrical connectors.

(4) Using the handles, slide IC out of the mounting tray.

(5) Return locking levers to their stowed positions in the handles.

B. Installation

(1) Verify that circuit breakers opened in Step A(1) are open and tagged.

(2) Install IC on mounting tray on lower shelf of AIDS equipment rack and carefully slide aft until connector guide pins engage.

R (3) Depress locking lever releases in IC handles and pull levers down to engage latches (Ref. 20-23-02).

(4) Return locking levers to their stowed positions.

(5) Remove tags and close circuit breakers opened in Step A(1).

(6) Perform Aircraft Integrated Data System Adjustment and Test procedure (Ref. 31-32-00).

2. Tape Cartridge

A. Removal

(1) On Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215, open and tag circuit breakers AIDS/FLT RCDR - DC, phase A, phase B, and phase C.

(2) Rotate tape cartridge lock handle to OPEN position.

(3) Use the bar handle on the front panel of the tape cartridge to pull the cartridge out of its housing in the incremental recorder.

B. Installation

(1) Verify that circuit breakers opened in Step 2A(1) are open and tagged.

(2) Verify that magnetic tape is correctly fed between supply reel and take-up reel of tape cartridge and that tape reel drive belt is around the capstan.

(3) Verify that cartridge lock handle on incremental recorder panel is in the OPEN position.

(4) Position tape cartridge so that nylon runners engage mating slides in the incremental recorder housing.

(5) Push tape cartridge into the housing until front panels of cartridge and recorder are flush.

(6) Rotate cartridge lock handle to the TAPE CARTRIDGE LOCKED position.

(7) Remove tags and close circuit breakers opened in Step 2A(1).

R R (8) Perform aircraft integrated data systems adjustment and test procedure (Ref. 31-32-00).

CONTINUOUS LOOP RECORDER (CLR) - REMOVAL AND INSTALLATION

R 1. Referenced Procedures

R R	20-23-02	Rack Mounted ARINC Box Latch Lever - Maintenance Procedure
R R	31-32-00	Aircraft Integrated Data System - Adjustment and Test

R 2. Removal/Installation

A. Removal

(1) On Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215, open and tag circuit breakers AIDS/FLT RCDR - DC, phase A, phase B, and Phase C.

(2) Locate the continuous loop recorder (CLR) on the lower shelf of the aircraft integrated data system (AIDS) equipment rack in the forward electronics service center, zone 110.

R (3) Depress locking lever releases in both CLR handles and pull levers down to release the latches and disengage electrical connectors.

(4) Using handles, slide CLR out of mounting tray.

(5) Return locking levers to their stowed positions in handles.

B. Installation

(1) Verify that circuit breakers opened in Step A(1) are open and tagged.

(2) Install CLR on mounting tray on the lower shelf of AIDS equipment rack and carefully slide aft until connector guide pins engage.

R (3) Depress locking lever releases in CLR handles and pull levers down to engage latches (Ref. 20-23-02).

(4) Return levers to their stowed positions.

(5) Remove tags and close circuit breakers opened in Step A(1).

(6) Perform Aircraft Integrated Data System Adjustment and Test Procedure (Ref. 31-32-00).

AIDS CABIN ALTITUDE PRESSURE TRANSMITTER REMOVAL AND INSTALLATION

1. Removal/Installation

A. Removal

(1) On Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215, open and tag circuit breakers AIDS/FLT RCDR - DC, phase A, phase B, and phase C.

(2) Gain access to electrical equipment panel in ceiling area above galley lift, zone 250. Locate cabin altitude pressure transmitter mounted on panel.

(3) Disconnect electrical harness.

(4) Loosen transmitter support clamp attach screws, and slip transmitter out of the clamps.

B. Installation

(1) Verify that circuit breakers opened in Step A(1) are open and tagged.

(2) Insert transmitter into loops of support clamps, with receptacle end of transmitter facing upward.

(3) Tighten support clamp attach screws.

(4) Connect electrical harness plug to transmitter receptacle.

(5) Remove tags and close circuit breakers opened in Step A(1).

R (6) Refer to Aircraft Integrated Data System Fault
R Isolation (Ref. 31-32-00) and Data Acquisition Unit No.
R 2 Fault Isolation (Ref. 31-32-11, Figure 110) and check
R the transmitter operation.

R # DATA ACQUISITION UNIT NO. 1 - FAULT ISOLATION

R ## 1. General

R Reference data and fault isolation procedures for troubleshooting system faults are included in this section of the manual. A system malfunction detected by the flight crew is normally entered in the aircraft flight log book and reported to maintenance personnel by a FIRM fault code number. This number and the flight log book write-up can be found in the Chapter 31 Fault Code Index. The index specifies the maintenance manual section, fault isolation diagram figure number and, where appropriate, a block number indicating the diagram entry point containing the fault isolation procedure. When no block number is specified, the diagram entry point is block 1.

R Prerequisites listed at the top of each diagram identify mandatory preliminary steps and circuit breakers that must be closed before initiating any fault isolation step.

R Schematic diagrams, identified by a SCHEM number, supplement fault isolation procedures as maintenance aids. The schematics show the basic system circuitry necessary for troubleshooting and include cross-reference indexes to the wiring diagram manual pages required for checking component interconnect wiring.

R ## 2. Fault Isolation/Identification

R Schematics contained in this section are designed to provide the technician with troubleshooting documents that contain adequate information for isolating and confirming a suspected fault in any of the signals routed to data acquisition unit (DAU) No. 1. In the event a schematic in this section contains a group of signals, part of which are routed to DAU No. 2 or No. 3, the affected schematic is also included in the appropriate Section 31-32-11 (DAU No. 2) or 31-32-12 (DAU No. 3).

R Technicians involved with troubleshooting the AIDS system should be familiar with the information in Section 31-32-00 Aircraft Integrated Data System - Fault Isolation. This section includes information on the use of the Model 563 AIDS/DFDR Portable Tester and the tabulated signal data included on each schematic.

R Table 101 lists the fault isolation diagrams and schematics in this section.

TABLE 101

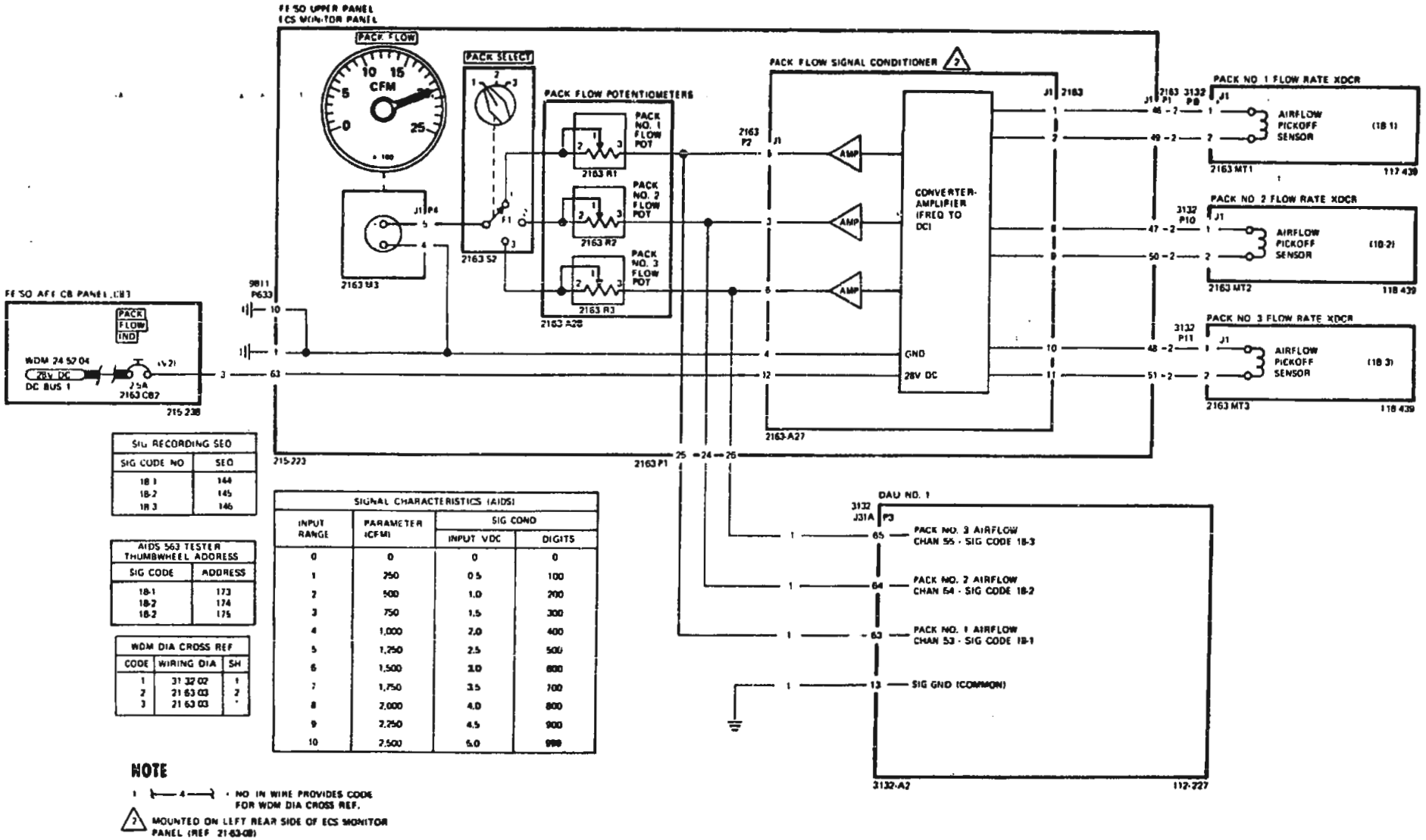
FIGURE	TITLE
SCHEM 1	Pack Airflow Monitoring Schematic
SCHEM 2	Pitch Computer Cruise (Altitude Hold) Monitoring Schematic
SCHEM 3	Angle of Attack Pitch Axis Local Air Flow Monitoring Schematic
SCHEM 4	HF and VHF Microphone Monitoring Schematic
SCHEM 5	Control Wheel (Roll) and Rudder Pedal Position Monitoring Schematic
SCHEM 6	Inboard and Outboard Aileron Surface Position Monitoring Schematic
SCHEM 7	Rudder Surface Position Monitoring Schematic
SCHEM 8	Control Column Position and Trim Position (Pitch) Monitoring Schematic
SCHEM 9	Horizontal Stabilizer Position Monitoring Schematic
SCHEM 10	Trailing Edge Flap Position Monitoring Schematic
SCHEM 11	Spoiler Position Monitoring Schematic
SCHEM 12	Right Wing Slat (All) Position Monitoring Schematic
SCHEM 13	Engine Start/Shutdown Monitoring Schematic
SCHEM 14	Hydraulic Systems Pressure Monitoring Schematic
SCHEM 15	Engine Low and High Pressure Anti-Ice Switch Monitoring Schematic
SCHEM 16	Triaxial Accelerometer Monitoring Schematic
SCHEM 17	Hard Landing, Gross Weight, and CG Monitoring Schematic
SCHEM 18	Left Wing Slats Proximity Switch Sensor Monitoring Schematic
SCHEM 19	Right Wing Slats Proximity Switch Sensor Monitoring Schematic

R TABLE 101 (Cont)

FIGURE	TITLE
SCHEM 20	Landing Gear In-Transit Time and Approach - All Landing Gears Position Monitoring Schematic
SCHEM 21	Approach - Air/Ground Sensor Monitoring Schematic
SCHEM 22	Engine Thrust Reverser In-Transit and Deployed Monitoring Schematic
SCHEM 23	ADC Course and Fine Pressure Altitude Monitoring Schematic
SCHEM 24	ADC Static Air Temperature Monitoring Schematic
SCHEM 25	ADC Computed Airspeed and Mach Number Monitoring Schematic
SCHEM 26	ADC True Airspeed Monitoring Schematic
SCHEM 27	ADC Altitude, SAT/TAS, Airspeed, and Mach Number Monitoring Schematic
SCHEM 28	Vertical Gyro No. 1 Pitch and Roll Attitude Monitoring Schematic
SCHEM 29	Compass Coupler No. 1 Directional Heading Monitoring Schematic
SCHEM 30	Marker Beacon Receiver No. 1 Middle Market Monitoring Schematic
SCHEM 31	System Bleed Air Pressure Monitoring Schematic
SCHEM 32	Engine Fuel Flow Monitoring Schematic
SCHEM 33	Left Throttle Switch Position - Start of Takeoff Roll Monitoring Schematic
SCHEM 34	Engine Pressure Ratio Monitoring Schematic
SCHEM 35	Engine LP Shaft Speed (N1) Monitoring Schematic
SCHEM 36	Engine IP Shaft Speed (N2) Monitoring Schematic
SCHEM 37	Engine HP Shaft Speed (N3) Monitoring Schematic

R TABLE 101 (Cont)

FIGURE	TITLE
SCHEM 38	Engine Turbine Gas Temperature (TGT) Monitoring Schematic
SCHEM 39	Engine Oil Pressure Monitoring Schematic
SCHEM 40	Engine Oil Temperature Monitoring Schematic
SCHEM 41	Engine Oil Quantity Monitoring Schematic


FE 50 UPPER PANEL
ECS MONITOR PANEL
PACK FLOW
PACK SELECT
PACK FLOW POTENTIOMETERS
PACK NO. 1 FLOW POT
PACK NO. 2 FLOW POT
PACK NO. 3 FLOW POT
PACK FLOW SIGNAL CONDITIONER
CONVERTER-AMPLIFIER (FREQ TO DCI)
AMP
GND
28V DC
PACK NO 1 FLOW RATE XDCR
PACK NO 2 FLOW RATE XDCR
PACK NO 3 FLOW RATE XDCR
AIRFLOW PICKOFF SENSOR
FE 50 AFT CB PANEL
PACK FLOW IND
WDM 24 52 04
28V DC
DC BUS 1
7.5A
DAU NO. 1
PACK NO. 3 AIRFLOW CHAN 55 - SIG CODE 18-3
PACK NO. 2 AIRFLOW CHAN 54 - SIG CODE 18-2
PACK NO. 1 AIRFLOW CHAN 53 - SIG CODE 18-1
SIG GND (COMMON)

SIG RECORDING SEQ	
SIG CODE NO	SEQ
18-1	144
18-2	145
18-3	146

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
18-1	173
18-2	174
18-3	175

WDM DIA CROSS REF		
CODE	WIRING DIA	SH
1	31 32 02	1
2	21 63 03	2
3	21 63 03	*

SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (CFM)	SIG COND	
		INPUT VDC	DIGITS
0	0	0	0
1	250	0.5	100
2	500	1.0	200
3	750	1.5	300
4	1,000	2.0	400
5	1,250	2.5	500
6	1,500	3.0	600
7	1,750	3.5	700
8	2,000	4.0	800
9	2,250	4.5	900
10	2,500	5.0	999

NOTE

1 ⟵4⟶ * NO IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 MOUNTED ON LEFT REAR SIDE OF ECS MONITOR PANEL (REF 21-63-08)

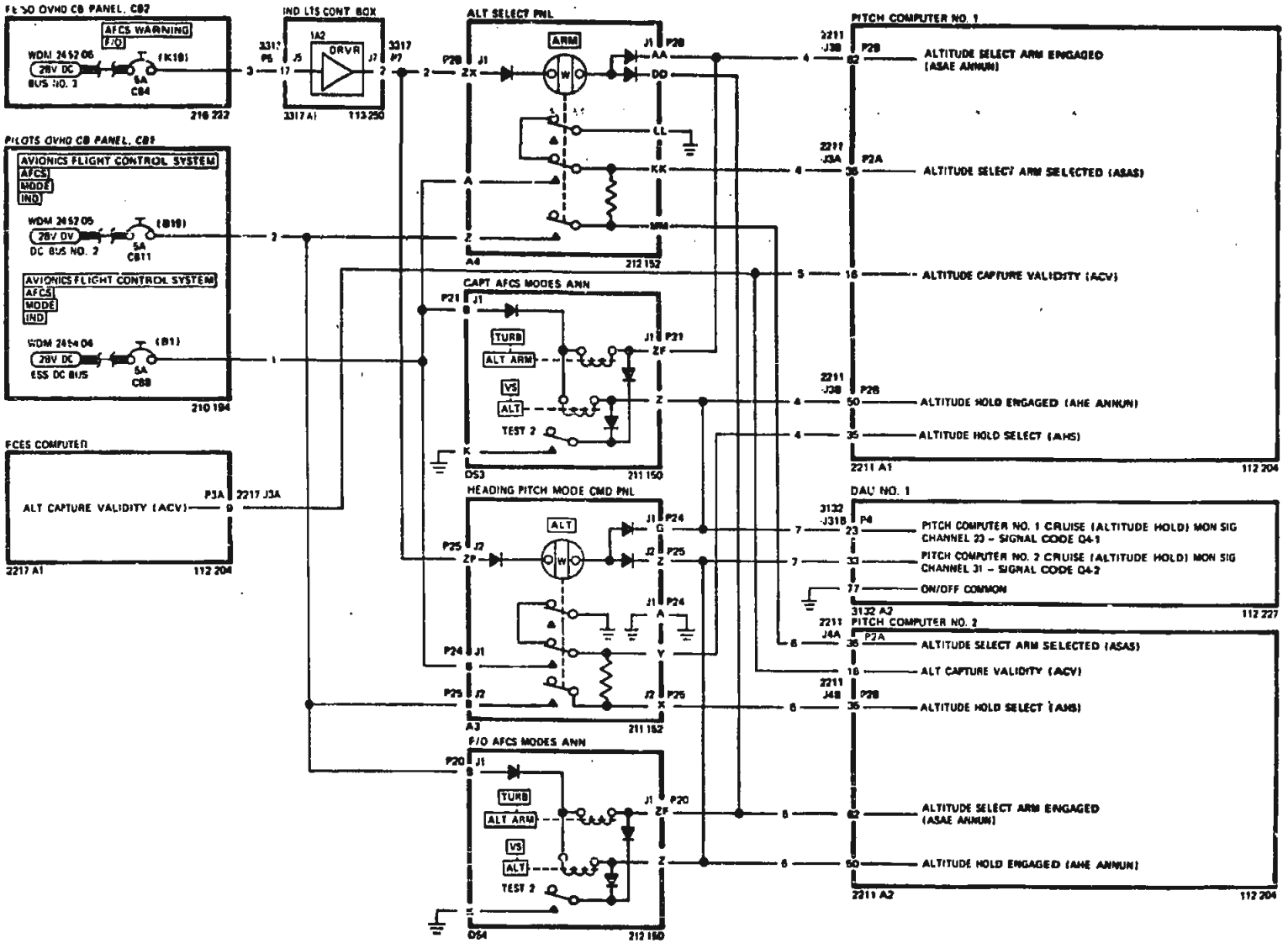
EM1-0032-31-805

R
R

Pack Airflow Monitoring Schematic
SCHEM 1

EFFECTIVITY: ALL

001B



SIGNAL CHARACTERISTICS (AIDS)		
PARAMETER	SIG COND	
	INPUT VDC	DIGITS
ALT HOLD ENGAGED	≤3	0
ALT HOLD NOT ENGAGED	≥7	1

SIG RECORDING SEQ	
SIG CODE	SEQ
041	256-8
042	256-5

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
041	284
042	284

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	22-10-03	1
2	22-10-04	1
3	22-10-04	2
4	22-11-13	1
5	22-11-01	1
6	22-11-14	1
7	31-32-11	1

NOTE

1 —4— NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

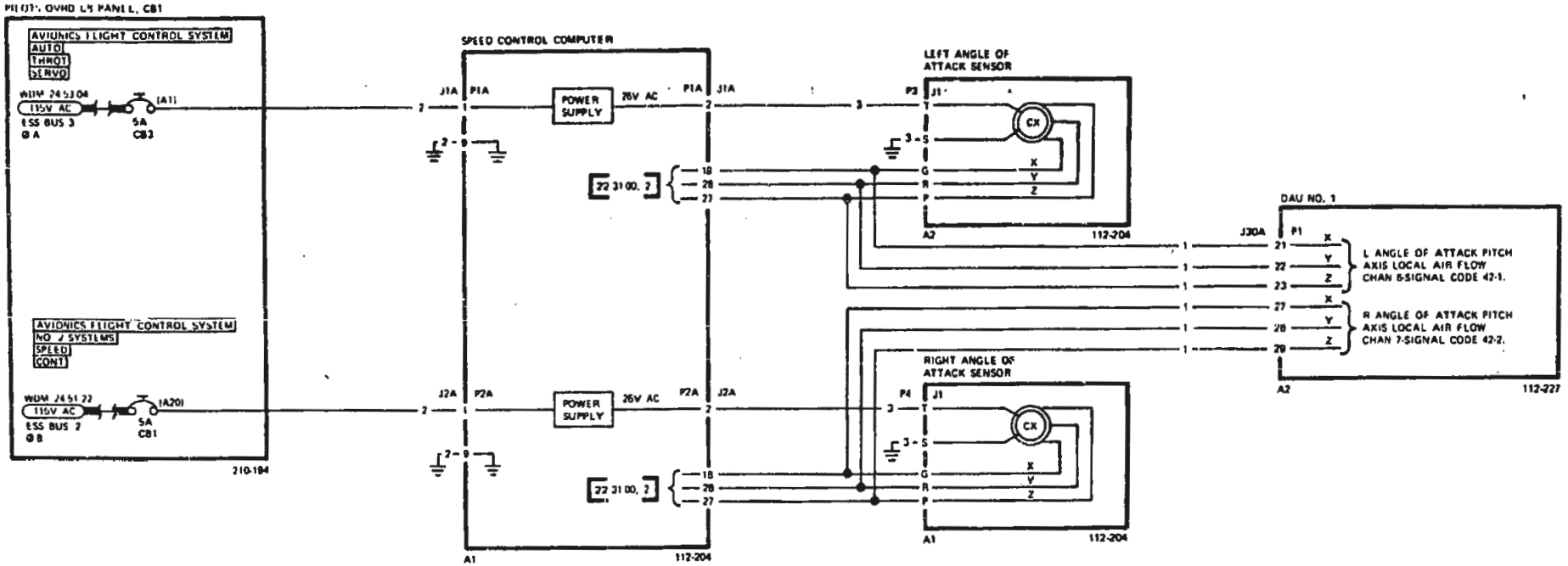
2 ALL REF DESIGNATIONS PREFIXED WITH 2210 UNLESS OTHERWISE SPECIFIED

EM1-0001-31-880

R Pitch Computer Cruise (Altitude Hold) Monitoring Schematic
R SCHEM 2

EFFECTIVITY: ALL

0018



NOTE

1. [22 10-00, 1] - CROSS REF TO SCHEM IN DIFFERENT ATA NO
2. —4— - NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.
3. ALL REF. DESIGNATIONS PREFIXED WITH 2231 UNLESS OTHERWISE SPECIFIED

SIGNAL CHARACTERISTICS (AIDS).				
INPUT RANGE	PARAMETER (DEG)	ACCURACY (DEG)	SIG COND	
			INPUT (SYNCHRO)	DIGITS
0	+50	± 0.25	81.0	225
1	+44		64.8	180
2	+38		48.6	135
3	+32		32.4	090
4	+26		16.2	045
5	+20		000	000
6	+14		343.8	955
7	+08		327.6	910
8	+02		311.4	866
9	-04		295.2	820
10	-10	± 0.25	279.0	775

SIG RECORDING SEQ	
SIG CODE	SEQ
42-1	123
42-2	124

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
42-1	152
42-2	153

WDM DIA CROSS REF.

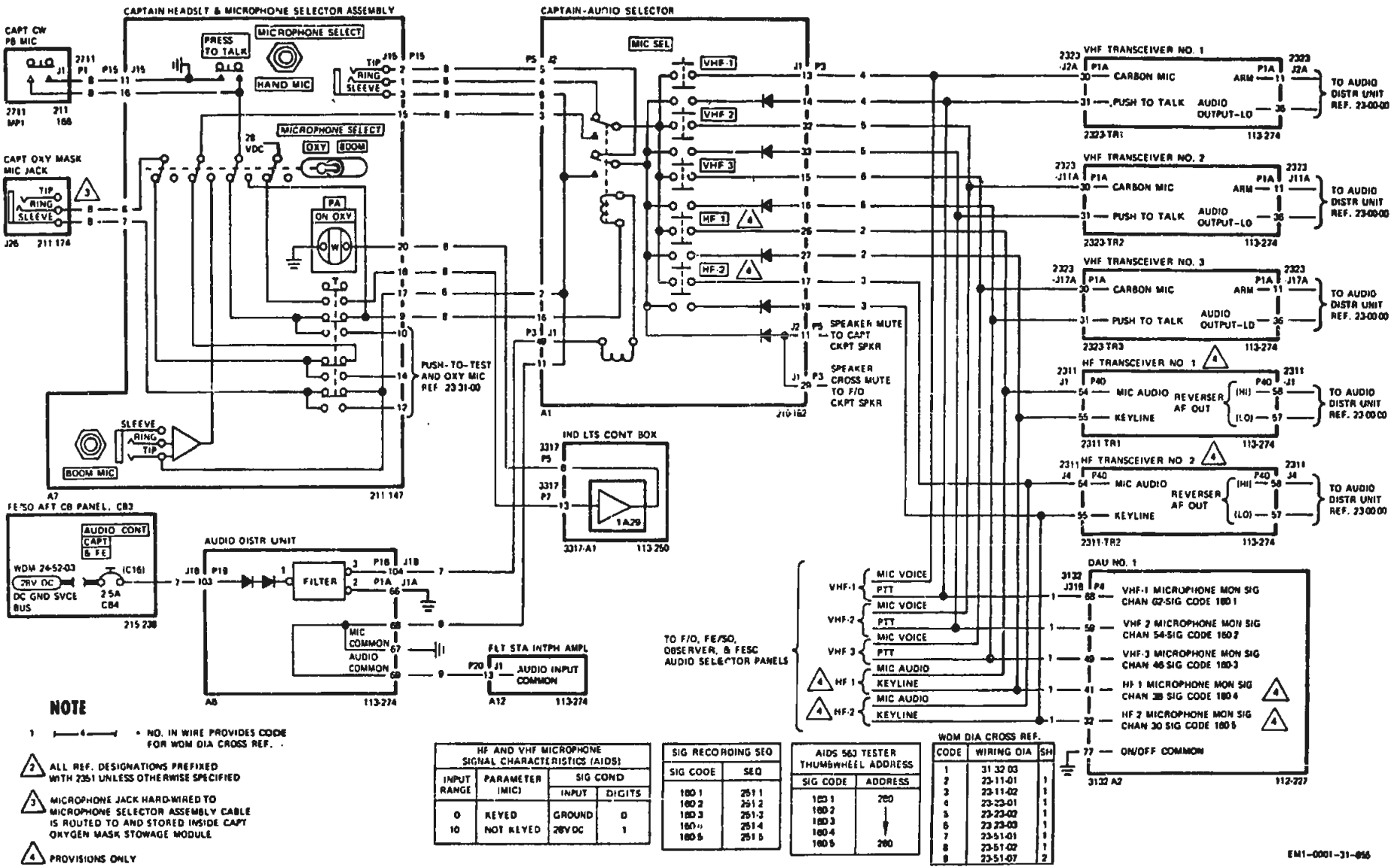
CODE	WIRING DIA	SH
1	31 32 11	1
2	22 10-01	
3	22 31-01	

EM1-0001-31-877

R Angle of Attack Pitch Axis Local Air Flow
R Monitoring Schematic
R SCHEM 3

EFFECTIVITY: ALL

0018



NOTE

1 —4— * NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATIONS PREFIXED WITH 2351 UNLESS OTHERWISE SPECIFIED

3 MICROPHONE JACK HARD-WIRED TO MICROPHONE SELECTOR ASSEMBLY CABLE IS ROUTED TO AND STORED INSIDE CAPT OXYGEN MASK STOWAGE MODULE

4 PROVISIONS ONLY

HF AND VHF MICROPHONE SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (MIC)	SIG COND	
		INPUT	DIGITS
0	KEYED	GROUND	0
10	NOT KEYED	28VDC	1

SIG RECORDING SEQ	
SIG CODE	SEQ
1801	251 1
1802	251 2
1803	251-3
1804	251 4
1805	251 5

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
1801	280
1802	↓
1803	
1804	
1805	280

WDM DIA CROSS REF.		
CODE	WIRING DIA	SH
1	31 32 03	
2	23-11-01	1
3	23-11-02	1
4	23-23-01	1
5	23-23-02	1
6	23-23-03	1
7	23-51-01	1
8	23-51-02	1
9	23-51-07	2

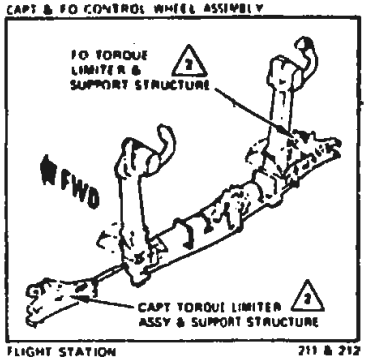
R
R

HF and VHF Microphone Monitoring Schematic
SCHEM 4

EFFECTIVITY: ALL

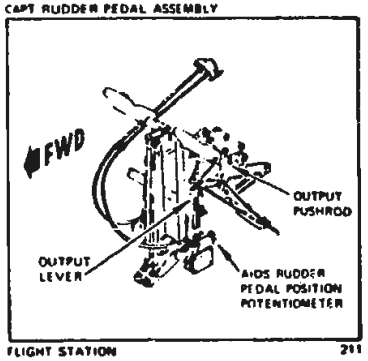
001B

CAPT & FO CONTROL WHEEL ASSEMBLY

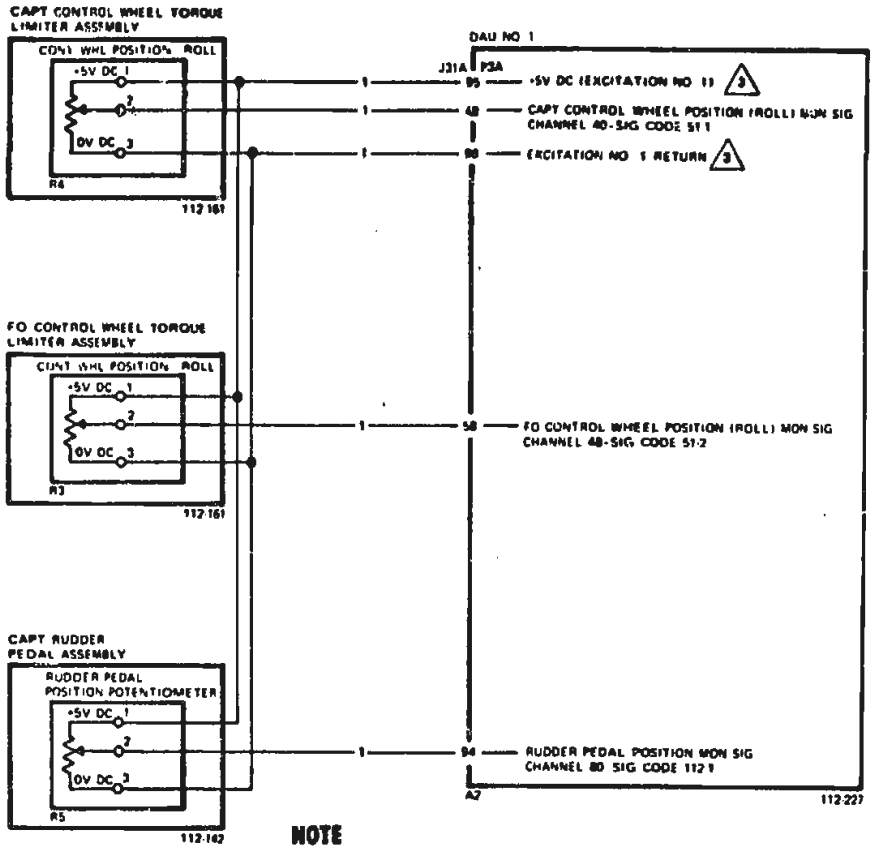


FLIGHT STATION 211 & 212

CAPT RUDDER PEDAL ASSEMBLY



FLIGHT STATION 211



NOTE

1 ⟵4⟶ = NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATIONS PREFIXED WITH 3132

3 AIDS CONTROL WHEEL POSITION POTENTIOMETER INSTALLED ON SUPPORT STRUCTURE FOR EACH ASSEMBLY

4 DAU NO. 1 INTERNAL POWER SUPPLY

5 CONTROL WHEEL FULL RIGHT

6 CONTROL WHEEL FULL LEFT

7 RUDDER FULL RIGHT

8 RUDDER FULL LEFT

CONTROL WHEEL (ROLL) POSITION SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (DEGREES)	ACCURACY (DEGREES)	SIG COND INPUT VDC	SIG COND DIGITS
0	70 (5)	± 2	0 318	074
1	64	± 2	0 607	121
2	48	± 2	0 970	194
3	32	± 2	1 400	280
4	16	± 2	1 917	383
5	0	± 2	2 500	500
6	16	± 2	3 083	617
7	32	± 2	3 597	719
8	48	± 2	4 030	806
9	64	± 2	4 391	878
10	70 (6)	± 2	4 683	937

RUDDER PEDAL POSITION SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (INCHES)	SIG COND INPUT VDC	SIG COND DIGITS
0	- 3 31 (7)	4 760	952
1	- 3 00	4 104	821
2	- 2 25	3.688	737
3	- 1 50	3 285	657
4	- 0 75	2 882	576
5	0 00	2 500	500
6	+ 0 75	2 132	426
7	+ 1 50	1 729	346
8	+ 2 25	1 326	265
9	+ 3 00	0 924	185
10	+ 3 25 (8)	0 800	160

SIG RECORDING SEQ	
SIG CODE	SEQ
51 1	120
51 2	121
112 1	122

AIDS 583 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
51 1	148
51 2	150
112 1	151

WDM DIA CROSS REF.

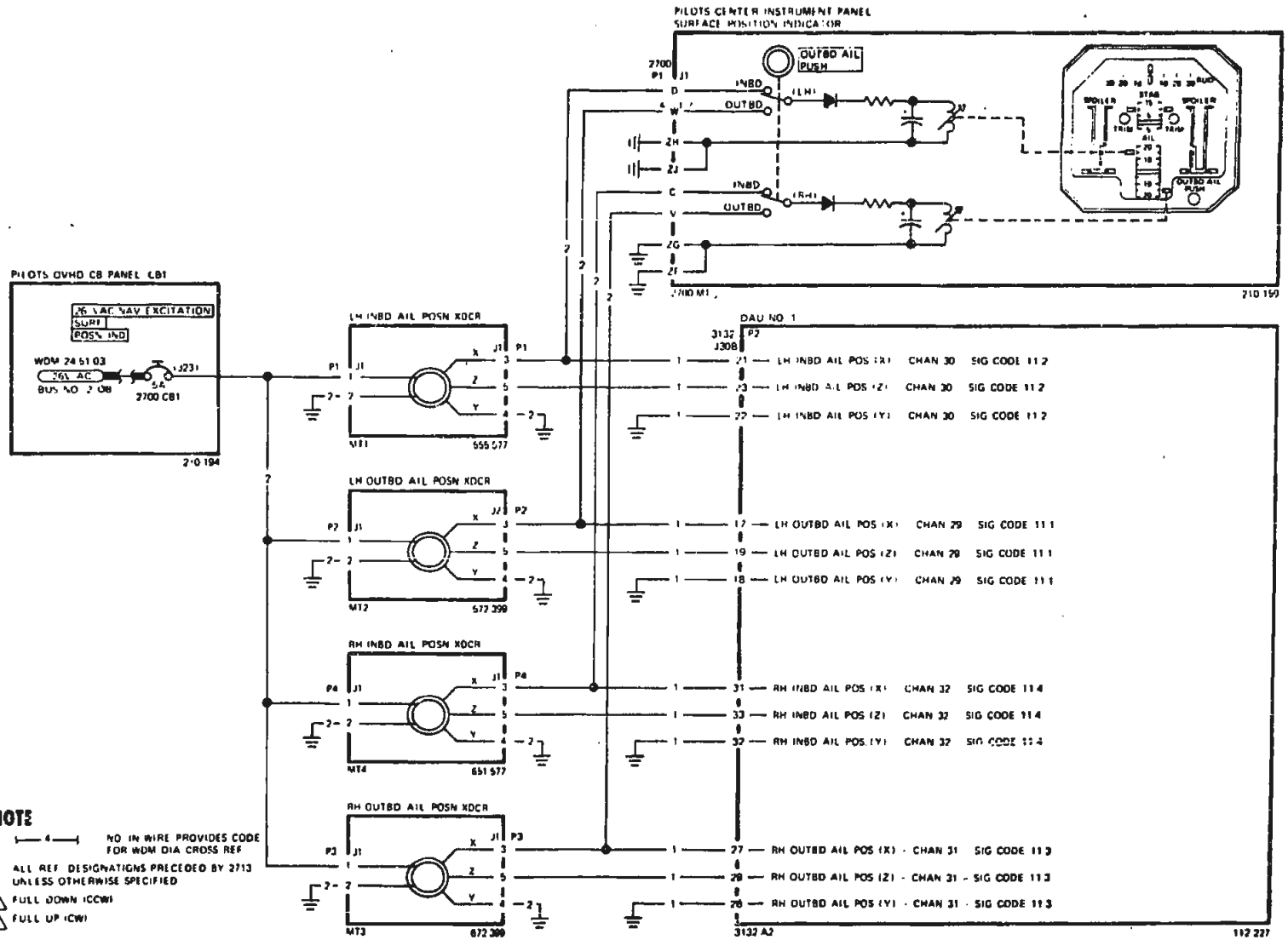
CODE	WIRING DIA	SM
1	31-32-04	4

EM1-0002-31-081

R Control Wheel (Roll) and Rudder Pedal Position
R Monitoring Schematic
R SCHEM 5

EFFECTIVITY: ALL

0018


PILOTS CENTER INSTRUMENT PANEL
SURFACE POSITION INDICATOR
OUTBD AIL PUSH
INBD
OUTBD
(LH)
(RH)
2700 P1 J1
2700 M1
210 159
PILOTS OVHD C8 PANEL CB1
26 VAC NAV EXCITATION
SURF POSN IND
WDM 24 51 03
26V AC
BUS NO 2 C8
5A
J231
2700 CB1
210 194
LH INBD AIL POSN XDCR
MT1
555 577
LH OUTBD AIL POSN XDCR
MT2
577 399
RH INBD AIL POSN XDCR
MT4
651 577
RH OUTBD AIL POSN XDCR
MT3
672 399
DAU NO 1
3132 J308 P2
21 — LH INBD AIL POS (X) CHAN 30 SIG CODE 111 2
23 — LH INBD AIL POS (Z) CHAN 30 SIG CODE 111 2
22 — LH INBD AIL POS (Y) CHAN 30 SIG CODE 111 2
17 — LH OUTBD AIL POS (X) CHAN 29 SIG CODE 111
19 — LH OUTBD AIL POS (Z) CHAN 29 SIG CODE 111
18 — LH OUTBD AIL POS (Y) CHAN 29 SIG CODE 111
31 — RH INBD AIL POS (X) CHAN 32 SIG CODE 114
33 — RH INBD AIL POS (Z) CHAN 32 SIG CODE 114
32 — RH INBD AIL POS (Y) CHAN 32 SIG CODE 114
27 — RH OUTBD AIL POS (X) - CHAN 31 SIG CODE 113
29 — RH OUTBD AIL POS (Z) - CHAN 31 - SIG CODE 113
28 — RH OUTBD AIL POS (Y) - CHAN 31 - SIG CODE 113
3132 A2
112 227

SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (DEG)	SIG COND INPUT DEG SYNCHRO	SIG COND DIGITS
0	20	020	3 278
1	18	016	322
2	12	012	367
3	8	008	411
4	4	004	456
5	0	000	500
6	4	356	544
7	8	352	589
8	12	348	633
9	16	344	678
10	20	340	4 722

NOTE USES +45 DEG AIDS SYNCHRO CHANNEL

SIG RECORDING SEQ	
SIG CODE NO	SEQ
111	126
112	127
113	128
114	129

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
111	155
11-2	156
113	157
11-4	158

WDM DIA CROSS REF		
CODE	WIRING DIA	SH
1	31 32 04	2
2	27-13 01	1

NOTE

1 —— 4 —— NO IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF

2 ALL REF DESIGNATIONS PRECEDED BY 2713 UNLESS OTHERWISE SPECIFIED

3 FULL DOWN (CCW)

4 FULL UP (CW)

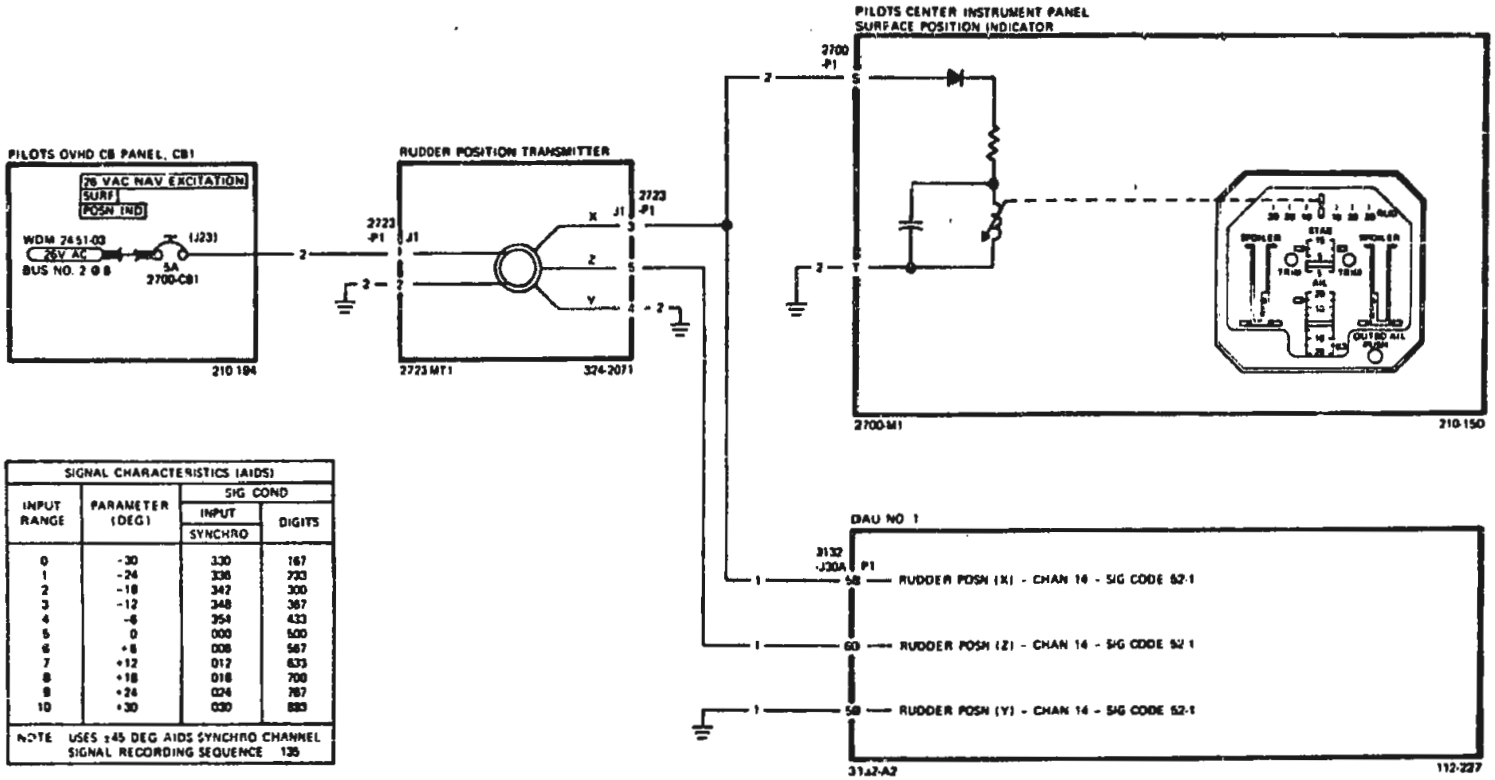
EM1-0002-31-803

R
R
R

Inboard and Outboard Aileron Surface Position Monitoring Schematic
SCHEM 6

EFFECTIVITY: ALL

001B



SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (DEG)	SIG COND INPUT SYNCHRO	DIGITS
0	-30	330	167
1	-24	336	233
2	-18	342	300
3	-12	348	367
4	-6	354	433
5	0	000	500
6	+6	006	567
7	+12	012	633
8	+18	018	700
9	+24	024	767
10	+30	030	833
NOTE	USES ±45 DEG AIDS SYNCHRO CHANNEL SIGNAL RECORDING SEQUENCE 135		

AIDS 583 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
52-1	184

WDM DIA CROSS REF.		
CODE	WIRING DIA	SH
1	31-32 04	2
2	27 23 01	1

NOTE

1 ⟵4⟶ * NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

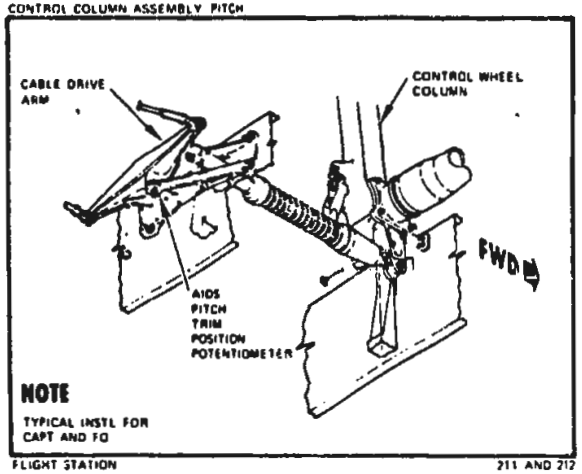
EM1-0001-31-819

R Rudder Surface Position Monitoring Schematic
R SCHEM 7

EFFECTIVITY: ALL

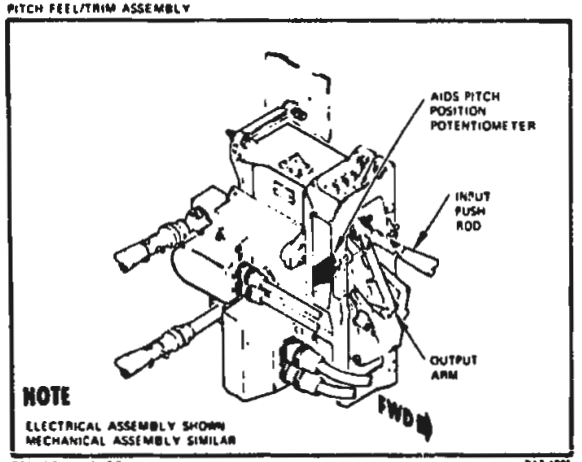
0018

CONTROL COLUMN ASSEMBLY PITCH



FLIGHT STATION 211 AND 212

PITCH FEEL/TRIM ASSEMBLY



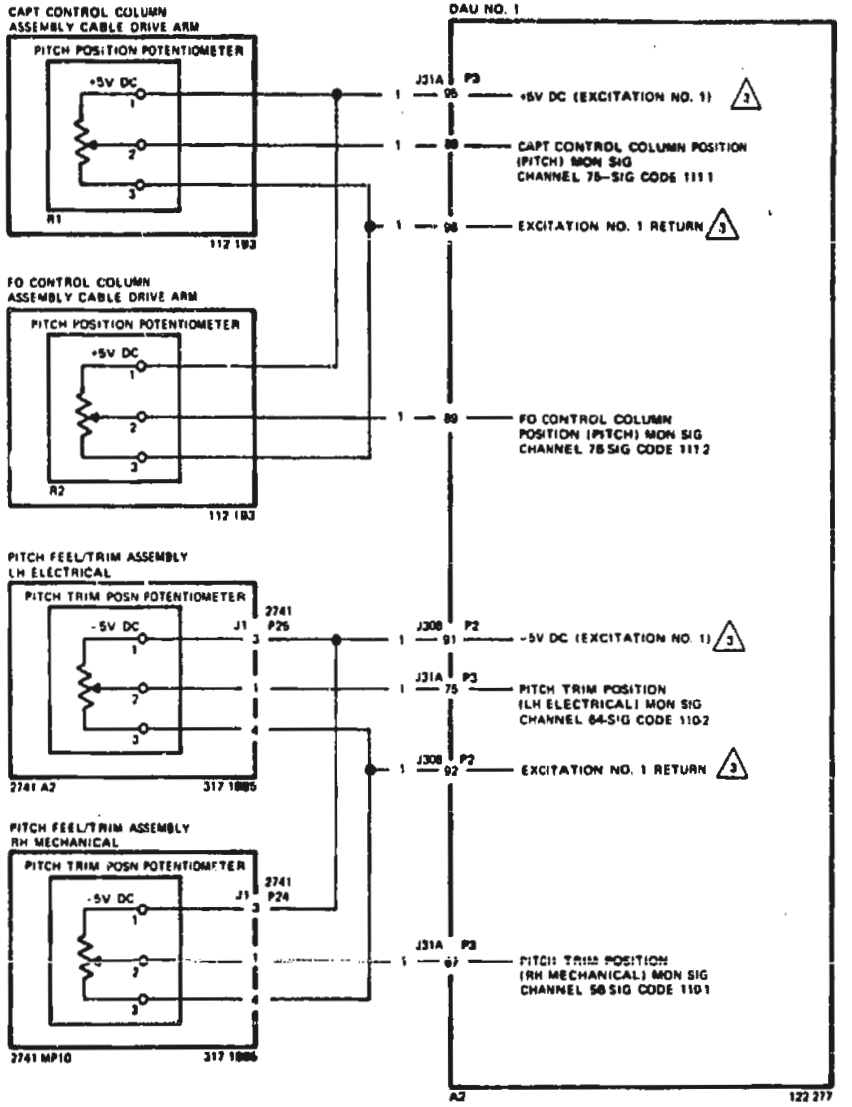
2741-A2 (LH ELEC)
2741-MP10 (RH MECH) 317 1886

NOTE

1 ⟵ 4 ⟵ ND IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF DESIGNATIONS PREFIXED WITH 3132 UNLESS OTHERWISE NOTED

3 DAU NO 1 INTERNAL POWER SUPPLY



PITCH TRIM POSITION (ELEC & MECH) SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (DEGREES)	SIG COND INPUT VDC	SIG COND DIGITS
0	-10	4.500	900
1	- 9	4.273	855
2	- 8	4.013	803
3	- 7	3.743	749
4	- 6	3.442	688
5	- 5	3.128	626
6	- 4	2.788	554
7	- 3	2.363	472
8	- 2	1.881	376
9	- 1	1.290	258
10	0	0.500	100
	(0.5)	0.949	190

CONTROL COLUMN POSITION (PITCH) SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (INCHES)	SIG COND INPUT VDC	SIG COND DIGITS
0	0.0	3.810	762
1	1.6	3.486	697
2	3.2	3.170	634
3	4.8	2.900	580
4	6.7	2.500	500
5	7.8	2.326	465
6	8.2	2.212	442
7	9.8	1.905	381
8	11.4	1.595	319
9	13.0	1.278	256
10	14.2	1.026	205

SIG RECORDING SEQ	
SIG CODE	SEQ
1101	114
1102	115
1111	116
1112	117

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
1101	143
1102	144
1111	145
1112	146

WDM DIA CROSS REF.

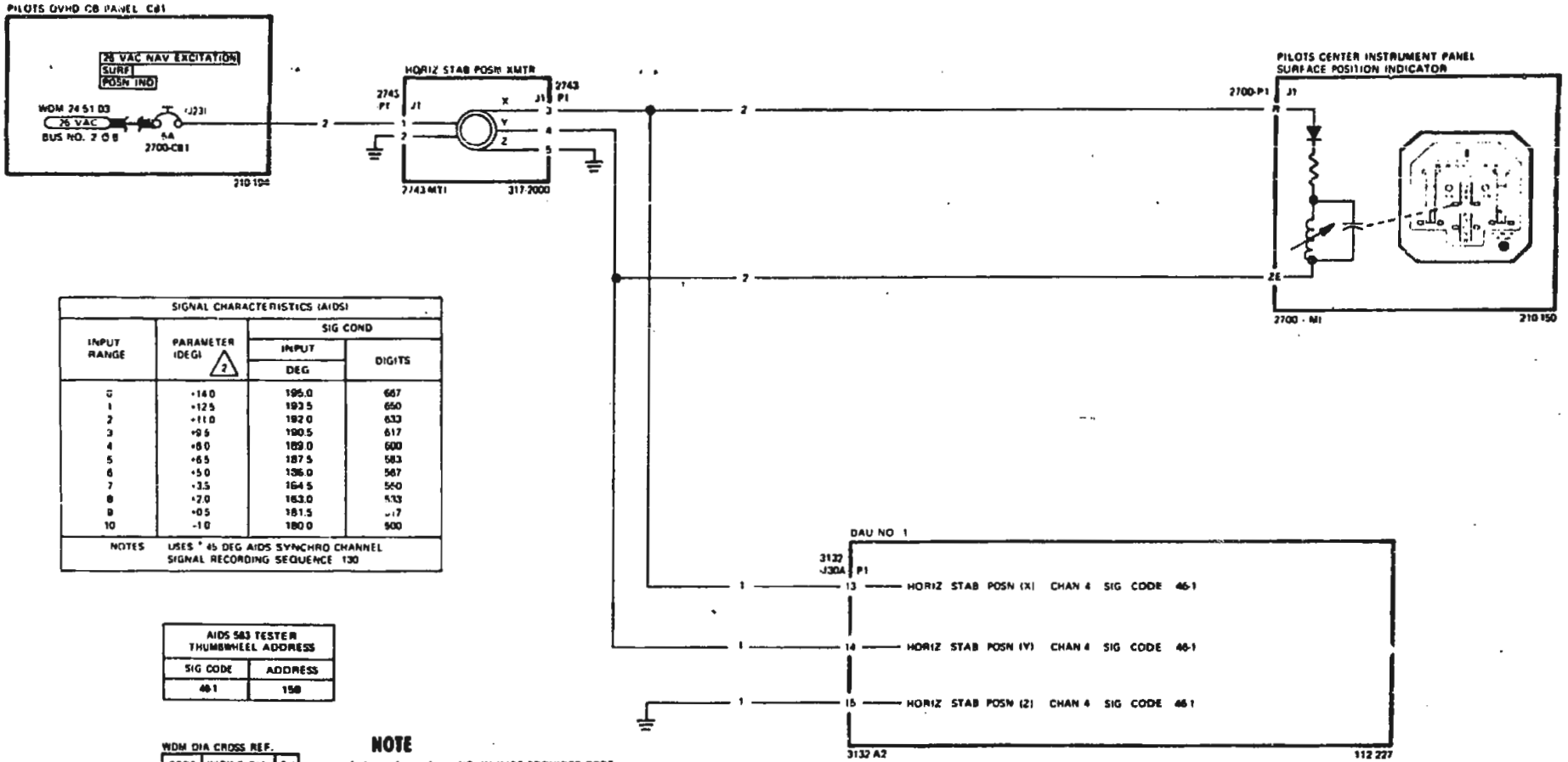
CODE	WIRING DIA	SH
1	31-32-04	4

EM1-0002-31-862

R Control Column Position and Trim Position
R (Pitch) Monitoring Schematic
R SCHEM 8

EFFECTIVITY: ALL

0018



SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (DEG) ⚠2	SIG COND INPUT DEG	SIG COND DIGITS
0	+14.0	195.0	667
1	+12.5	193.5	650
2	+11.0	192.0	633
3	+9.5	190.5	617
4	+8.0	189.0	600
5	+6.5	187.5	583
6	+5.0	186.0	567
7	+3.5	184.5	550
8	+2.0	183.0	533
9	+0.5	181.5	517
10	-1.0	180.0	500
NOTES	USES * 45 DEG AIDS SYNCHRO CHANNEL SIGNAL RECORDING SEQUENCE 130		

AIDS 583 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
46-1	158

WDM DIA CROSS REF.		
CODE	WIRING DIA	SH
1 2	31-32-04 27-43-01	2

NOTE

1 ——4——(* NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

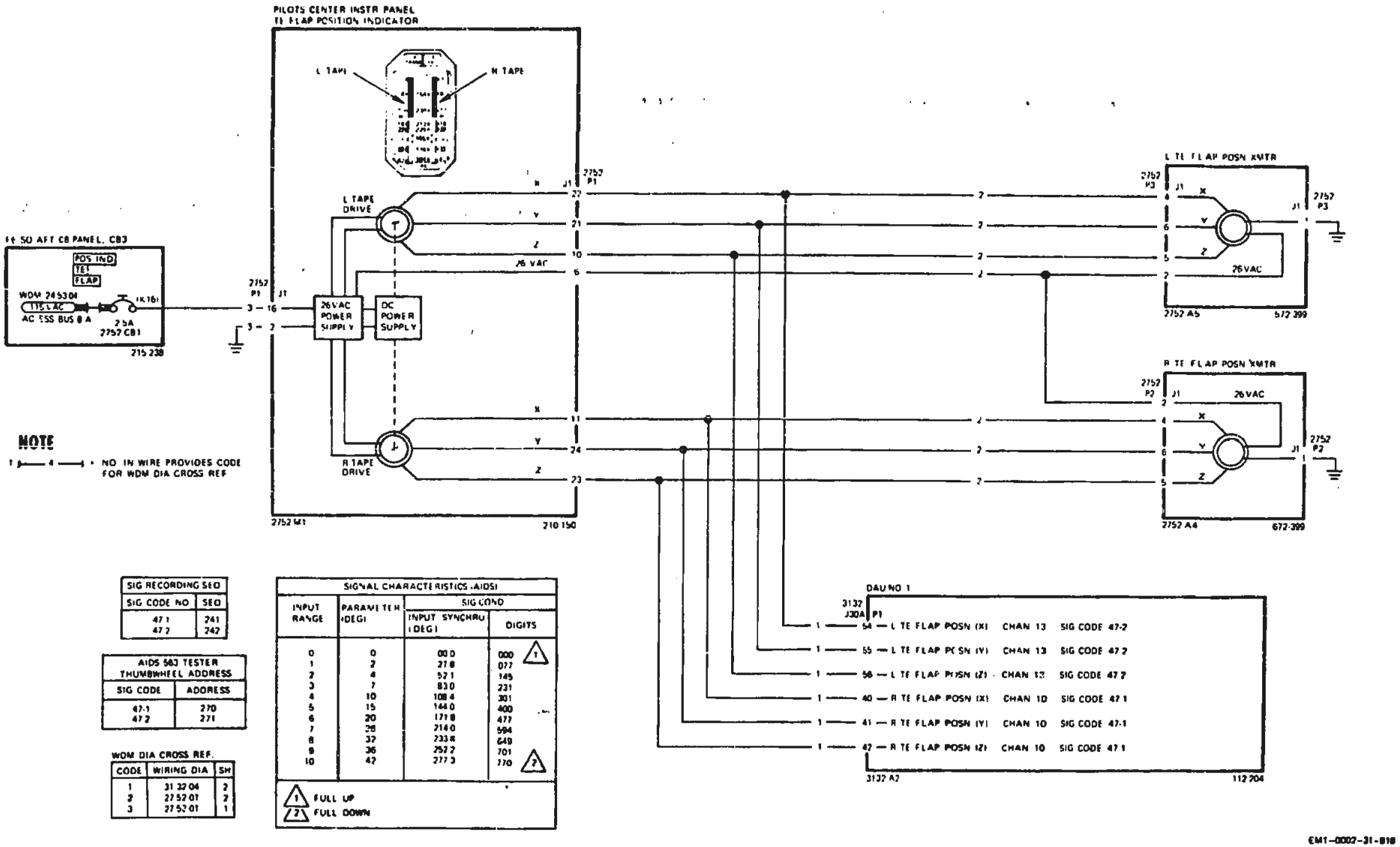
⚠2 POSITIVE DIRECTION IS LEADING EDGE DOWN (CW)

EM-0002-31-817

R Horizontal Stabilizer Position Monitoring Schematic
R SCHEM 9

EFFECTIVITY: ALL

OC:B


PILOTS CENTER INSTR PANEL
TE FLAP POSITION INDICATOR
L TAPE
R TAPE
L TAPE DRIVE
R TAPE DRIVE
26VAC POWER SUPPLY
DC POWER SUPPLY
26 VAC
2752 P1
2752 M1
210 150
TE SD AFT CB PANEL, CB3
POS IND
TE
FLAP
WDM 24-53-04
115 V AC
AC ESS BUS 8 A
2.5A
2752 CB1
215 238
L TE FLAP POSN XMTR
2752 P3
2752 A5
672 399
R TE FLAP POSN XMTR
2752 P2
2752 A4
672-399
DAU NO 1
3132 J30A P1
1 — 54 — L TE FLAP POSN (X) CHAN 13 SIG CODE 47-2
1 — 55 — L TE FLAP POSN (Y) CHAN 13 SIG CODE 47-2
1 — 56 — L TE FLAP POSN (Z) CHAN 13 SIG CODE 47-2
1 — 40 — R TE FLAP POSN (X) CHAN 10 SIG CODE 47-1
1 — 41 — R TE FLAP POSN (Y) CHAN 10 SIG CODE 47-1
1 — 42 — R TE FLAP POSN (Z) CHAN 10 SIG CODE 47-1
3132 A2
112 904

NOTE

1 — 4 — NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF

SIG RECORDING SEQ	
SIG CODE NO	SEQ
47-1	241
47-2	242

AIDS 583 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
47-1	270
47-2	271

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31-32-04	2
2	27-52-01	2
3	27-52-01	1

SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (DEG)	SIG COND INPUT SYNCHRO (DEG)	DIGITS
0	0	00.0	000 (1)
1	2	27.8	077
2	4	52.1	145
3	7	83.0	231
4	10	108.4	301
5	15	144.0	400
6	20	171.8	477
7	25	214.0	594
8	32	233.6	649
9	36	252.2	701
10	42	277.3	770 (2)

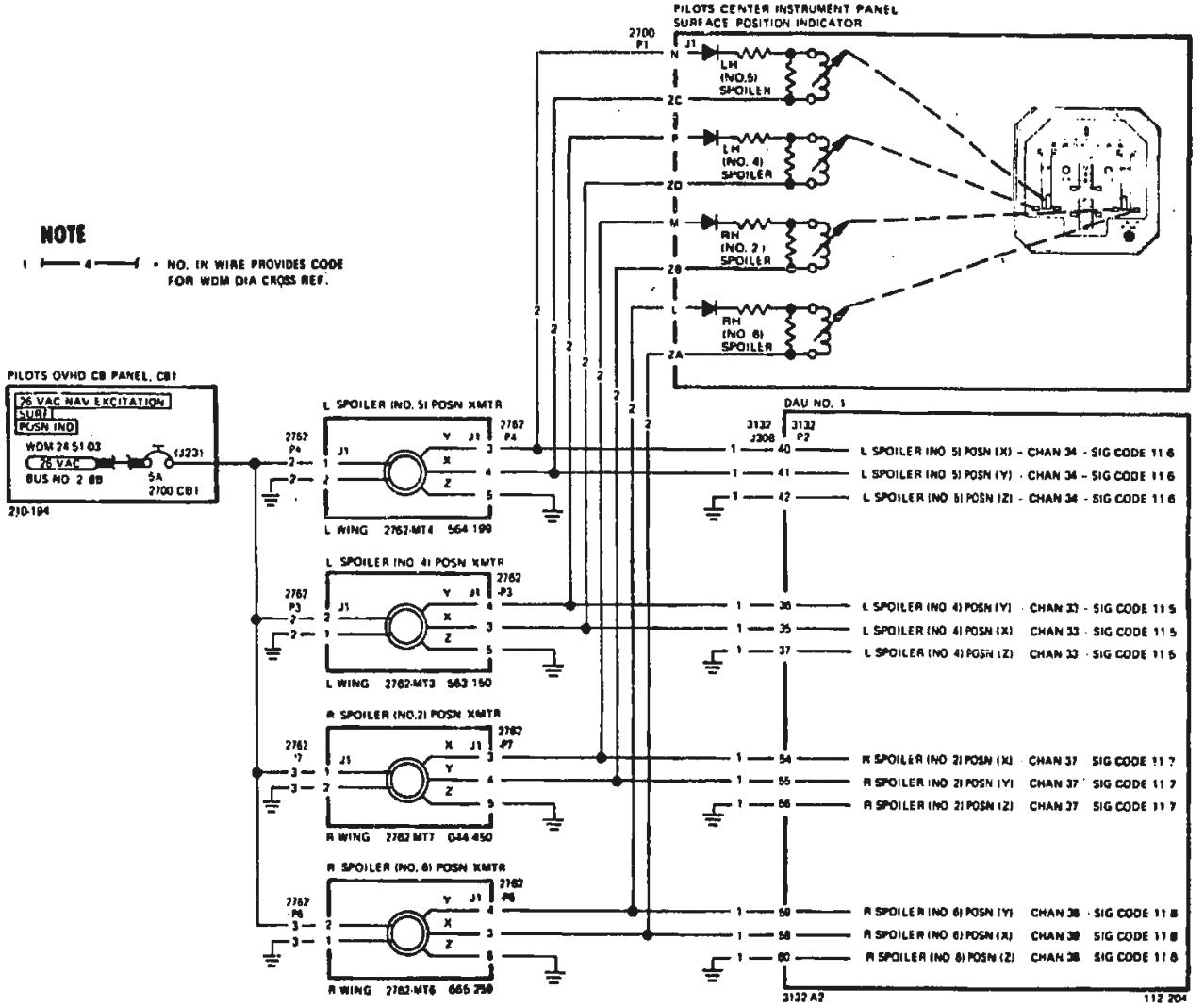
(1) FULL UP
(2) FULL DOWN

EM1-0002-31-B18

R R Trailing Edge Flap Position Monitoring Schematic
SCHEM 10

EFFECTIVITY: ALL

0018


PILOTS CENTER INSTRUMENT PANEL
SURFACE POSITION INDICATOR
2700 P1
LH (NO.5) SPOILER
LH (NO. 4) SPOILER
RH (NO. 2) SPOILER
RH (NO. 6) SPOILER
NOTE
NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.
PILOTS OVHD CB PANEL, CB1
26 VAC NAV EXCITATION
SURI
POSN IND
WDM 24 51 03
26 VAC
BUS NO 2 BB
5A
2700 CB1
210-194
L SPOILER (NO. 5) POSN XMTR
L WING 2762-MT4 564 199
L SPOILER (NO 4) POSN XMTR
L WING 2762-MT3 563 150
R SPOILER (NO.2) POSN XMTR
R WING 2762 MT7 044 450
R SPOILER (NO. 6) POSN XMTR
R WING 2762-MT6 665 250
DAU NO. 1
3132 J308
3132 P2
L SPOILER (NO 5) POSN (X) - CHAN 34 - SIG CODE 11 6
L SPOILER (NO 5) POSN (Y) - CHAN 34 - SIG CODE 11 6
L SPOILER (NO 6) POSN (Z) - CHAN 34 - SIG CODE 11 6
L SPOILER (NO 4) POSN (Y) - CHAN 33 - SIG CODE 11 5
L SPOILER (NO 4) POSN (X) - CHAN 33 - SIG CODE 11 5
L SPOILER (NO 4) POSN (Z) - CHAN 33 - SIG CODE 11 5
R SPOILER (NO 2) POSN (X) - CHAN 37 - SIG CODE 11 7
R SPOILER (NO 2) POSN (Y) - CHAN 37 - SIG CODE 11 7
R SPOILER (NO 2) POSN (Z) - CHAN 37 - SIG CODE 11 7
R SPOILER (NO 6) POSN (Y) - CHAN 38 - SIG CODE 11 8
R SPOILER (NO 6) POSN (X) - CHAN 38 - SIG CODE 11 8
R SPOILER (NO 6) POSN (Z) - CHAN 38 - SIG CODE 11 8
3132 A2
112 204

SIGNAL CHARACTERISTICS (AIDS)
(SIGNAL CODES 11-5 & 11-8)

INPUT RANGE	PARAMETER (DEG)	SIG COND INPUT (DEG SYNCHRO)	SIG COND DIGITS
0	00	180	000
1	06	186	067
2	12	192	133
3	18	198	200
4	24	204	267
5	30	210	334
6	36	216	400
7	42	222	467
8	48	228	534
9	54	234	600
10	60	240	667

NOTE USES 0-90 DEGREE AIDS SYNCHRO CHANNEL

SIGNAL CHARACTERISTICS (AIDS)
(SIGNAL CODES 11-6 & 11-7)

INPUT RANGE	PARAMETER (DEG)	SIG COND INPUT (DEG SYNCHRO)	SIG COND DIGITS
0	00	00	000
1	06	06	067
2	12	12	133
3	18	18	200
4	24	24	267
5	30	30	334
6	36	36	400
7	42	42	467
8	48	48	534
9	54	54	600
10	60	60	667

NOTE USES 0-90 DEGREE AIDS SYNCHRO CHANNEL

SIG RECORDING SEQ	
SIG CODE	SEQ
11-5	131
11-6	132
11-7	133
11-8	134

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
11-5	160
11-6	161
11-7	162
11-8	163

WDM DIA CROSS REF.

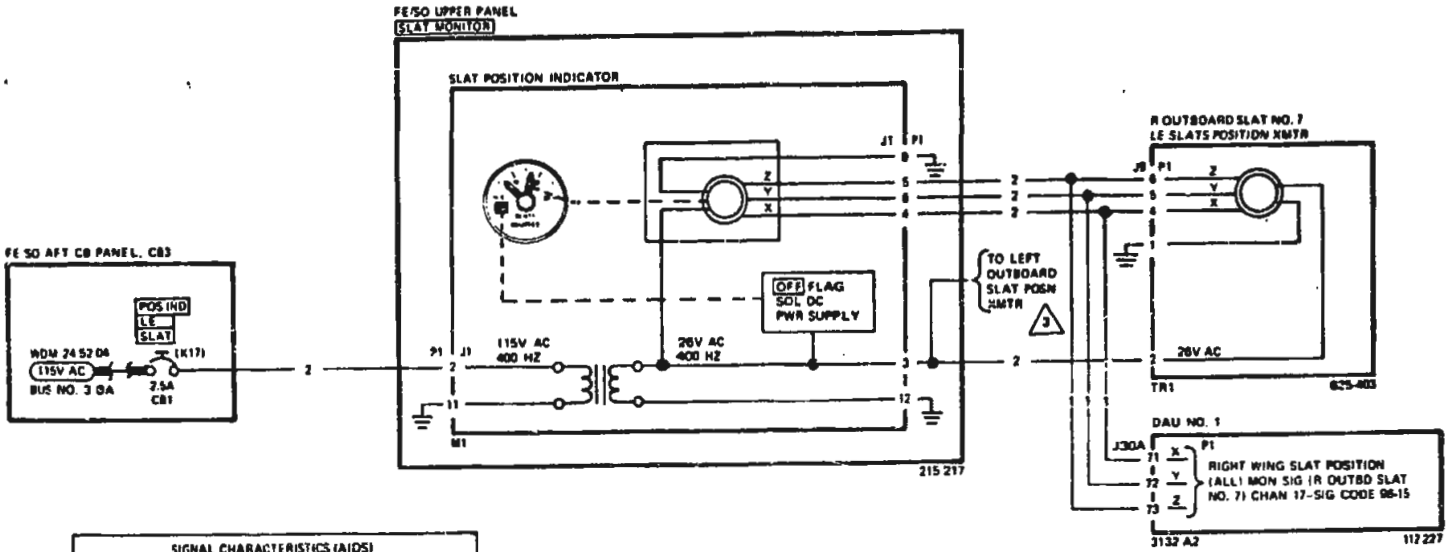
CODE	WIRING DIA	SH
1	31 32 04	2
2	27-62 01	1
3	37-62 02	2

EM1-0002-31-804

R Spoiler Position Monitoring Schematic
R SCHEM 11

EFFECTIVITY: ALL

0018



SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (DEGREES)	SIG COND	
		SYNCHRO ANGLE INPUT	DIGITS
0	0	00	00
1	3	16.4	46
2	6	32.7	91
3	9	49.1	136
4	12	65.5	182
5	15	81.8	228
6	18	98.2	274
7	21	114.6	320
8	24	131.0	364
9	27	147.3	410
10	30	163.7	456

NOTE

1 SIGNAL RECORDING SEQUENCE 243
2 AIDS 563 TESTER
THUMBWHEEL ADDRESS 272

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31-22-06	1
2	27-82-00	

NOTE

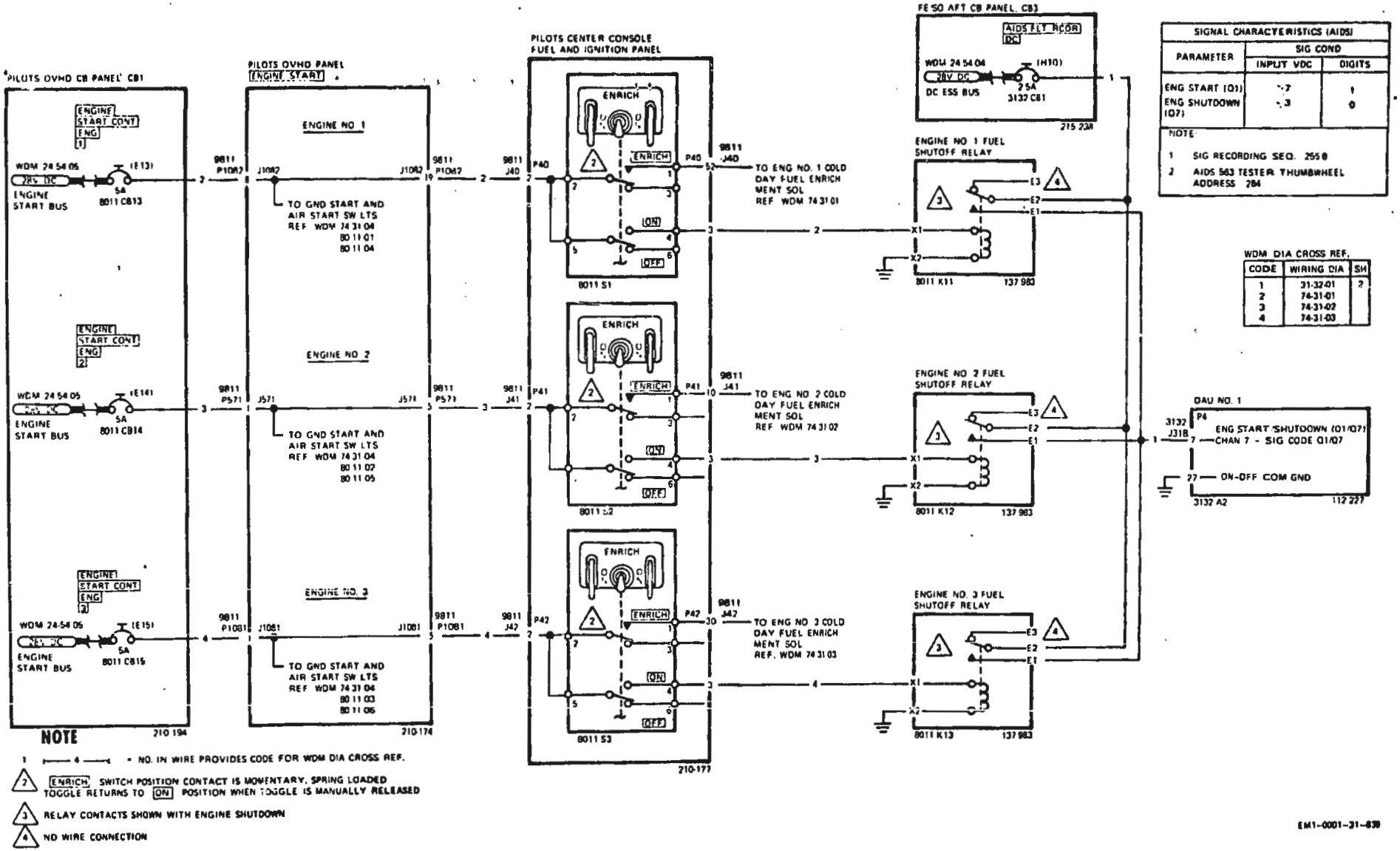
1 ⟵ 4 ⟶ 5 = NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.
2 ALL REF. DESIGNATIONS PREFIXED WITH 27-82 UNLESS OTHERWISE SPECIFIED
3 LEFT SLAT POSITION (ALL) NOT MONITORED THROUGH AIDS (REF. WDM 27-82-00)

EM1-0001-31-000

R Right Wing Slat (All) Position Monitoring Schematic
R SCHEM 12

EFFECTIVITY: ALL

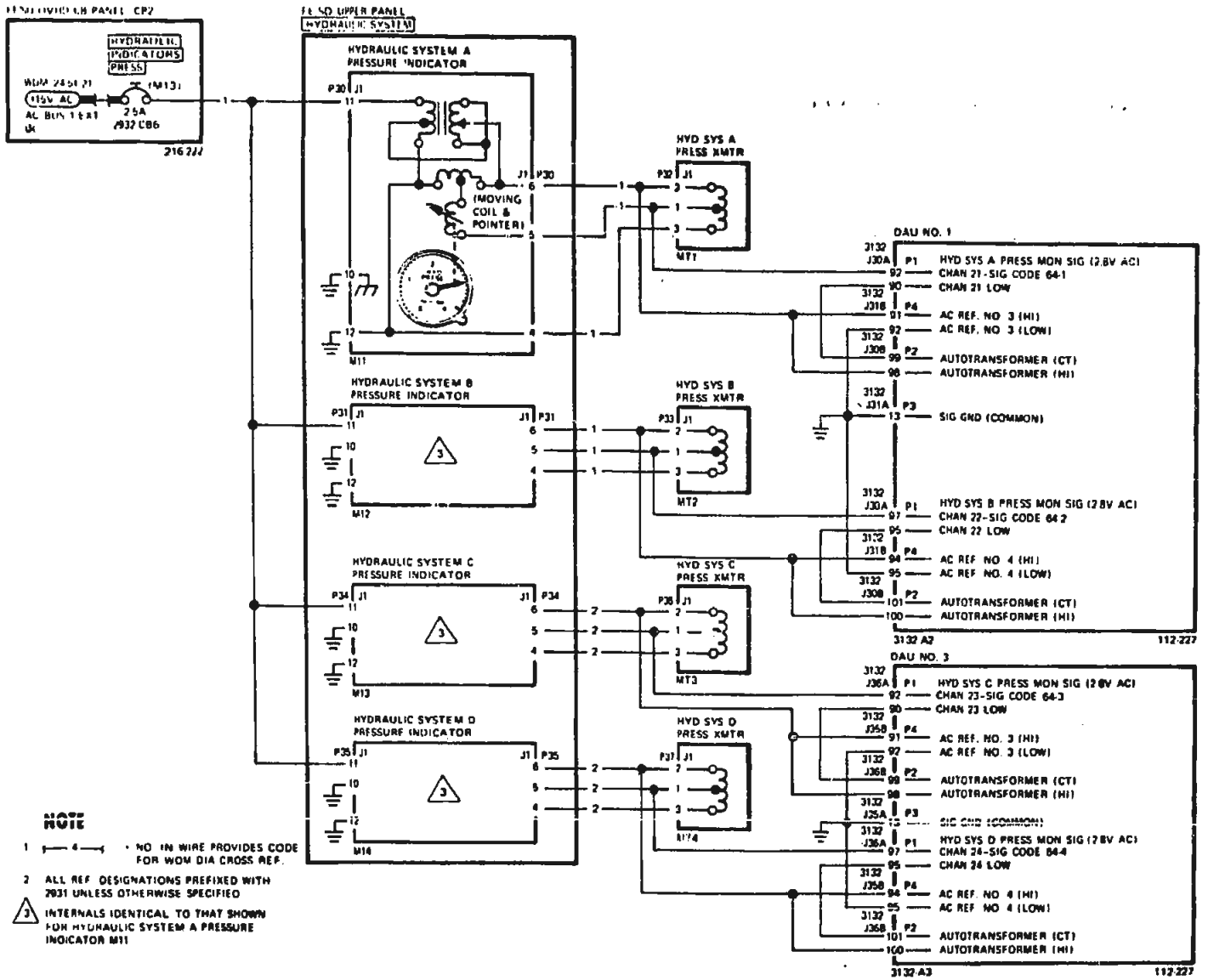
0018



R R Engine Start/Shutdown Monitoring Schematic
SCHEM 13

EFFECTIVITY: ALL

0018



NOTE

1 — 4 — NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATIONS PREFIXED WITH 7931 UNLESS OTHERWISE SPECIFIED

3 INTERNALS IDENTICAL TO THAT SHOWN FOR HYDRAULIC SYSTEM A PRESSURE INDICATOR M11

SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (PSI)	SIG COND	
		INPUT VAC	DIGITS
0	000	15.5	946
1	400	15.0	857
2	800	14.5	768
3	1200	14.0	678
4	1600	13.5	589
5	2000	13.0	500
6	2400	12.5	411
7	2800	12.0	322
8	3200	11.5	232
9	3600	11.0	143
10	4000	10.5	054

SIG RECORDING SEQ	
SIG CODE	SEQ
641	189
642	190
643	191
644	192

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
641	218
642	219
643	220
644	221

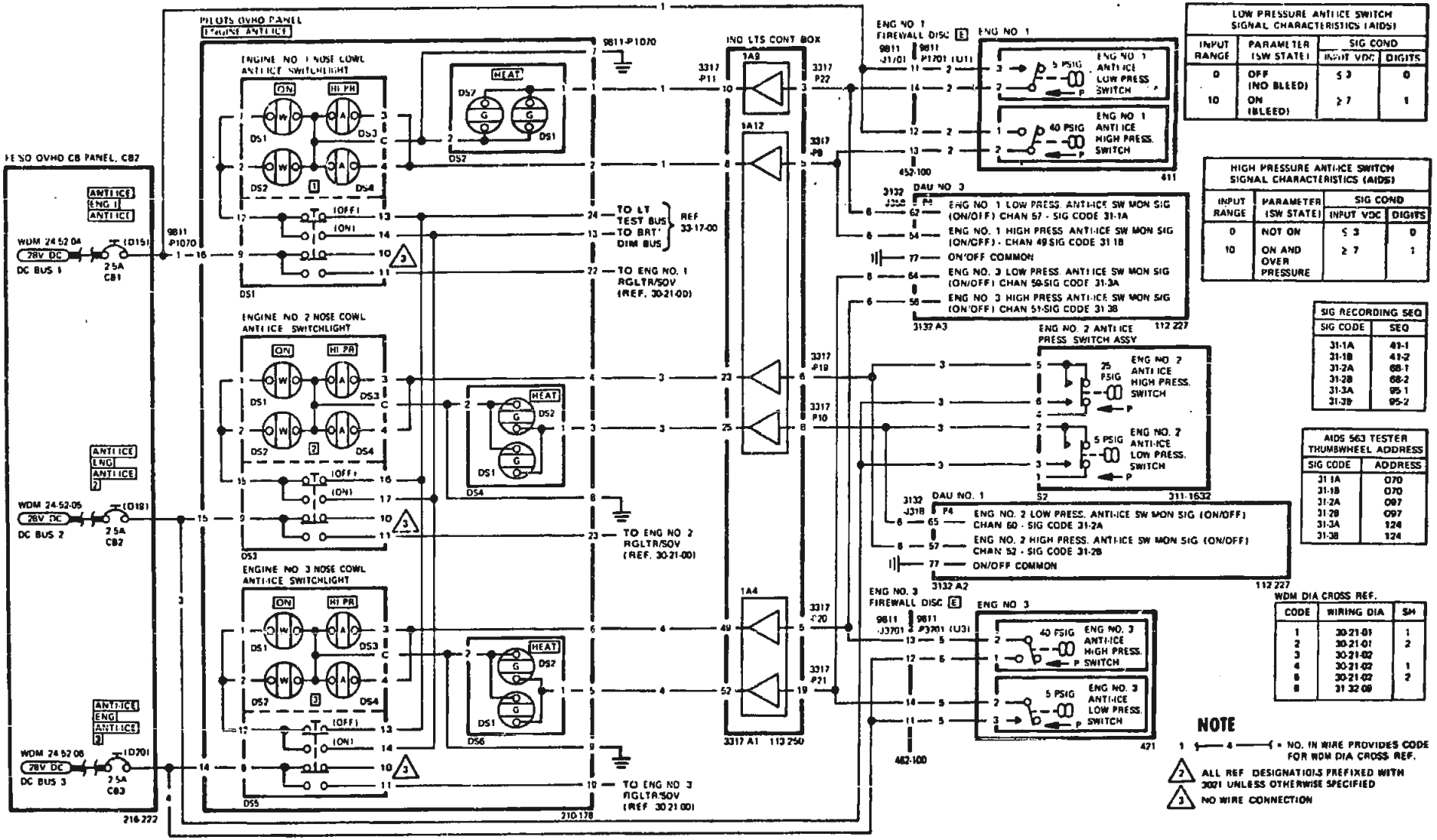
WDM DIA CROSS REF

CODE	WIRING DIA	SH
1	7931 01	
2	7931 02	

ER1-0001-31-866

R Hydraulic Systems Pressure Monitoring Schematic
R SCHEM 14

EFFECTIVITY: ALL



LOW PRESSURE ANTI-ICE SWITCH SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (SW STATE)	SIG COND	
		INPUT VDC	DIGITS
0	OFF (NO BLEED)	≤ 3	0
10	ON (BLEED)	≥ 7	1

HIGH PRESSURE ANTI-ICE SWITCH SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (SW STATE)	SIG COND	
		INPUT VDC	DIGITS
0	NOT ON	≤ 3	0
10	ON AND OVER PRESSURE	≥ 7	1

SIG RECORDING SEQ	
SIG CODE	SEQ
31-1A	41-1
31-1B	41-2
31-2A	68-1
31-2B	68-2
31-3A	95-1
31-3B	95-2

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
31-1A	070
31-1B	070
31-2A	097
31-2B	097
31-3A	124
31-3B	124

WDM DIA CROSS REF.		
CODE	WIRING DIA	SH
1	30-21-01	1
2	30-21-01	2
3	30-21-02	
4	30-21-02	1
5	30-21-02	2
8	31-32-08	

NOTE

1 ⟵ 4 ⟵ (= NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF DESIGNATIONS PREFIXED WITH 3001 UNLESS OTHERWISE SPECIFIED

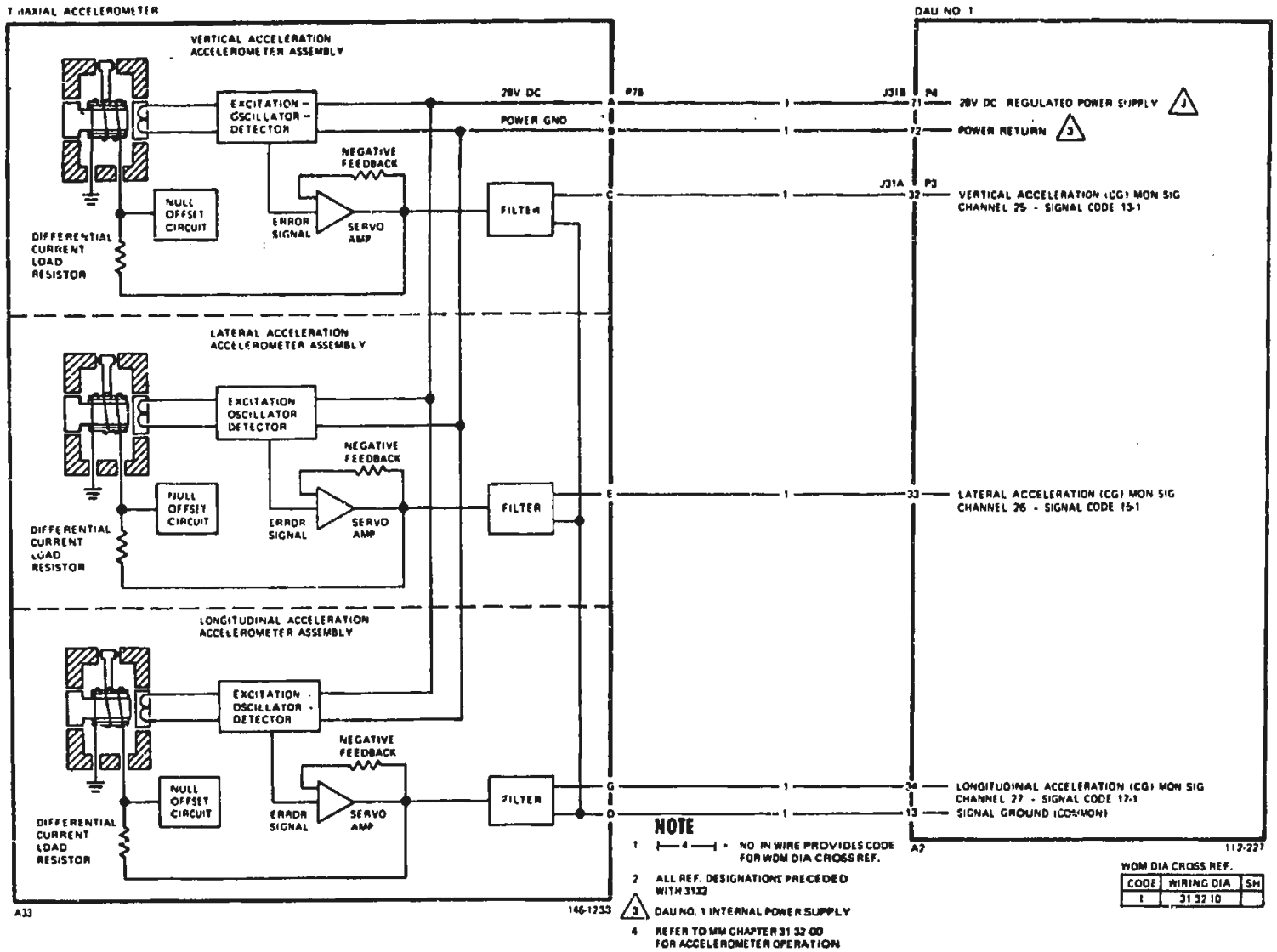
3 NO WIRE CONNECTION

EM1-0001-31-000

R Engine Low and High Pressure Anti-Ice
R Switch Monitoring Schematic
R SCHEM 15

EFFECTIVITY: ALL

0018



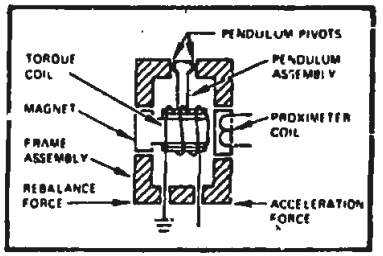
NOTE

1. —4— NO IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.
2. ALL REF. DESIGNATIONS PRECEDED WITH 3132
3. DAU NO. 1 INTERNAL POWER SUPPLY
4. REFER TO MM CHAPTER 31 32-00 FOR ACCELEROMETER OPERATION

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31 32 10	

ACCELEROMETER (TYPICAL)



VERTICAL ACCELERATION SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (G'S)	SIG COND	
		INPUT VDC	DIGITS
0	- 3.0	0.20	040
1	- 2.1	0.68	136
2	- 1.2	1.16	232
3	0.3	1.64	328
4	+ 0.6	2.12	424
5	+ 1.5	2.60	520
6	+ 2.4	3.08	616
7	+ 3.3	3.56	712
8	+ 4.2	4.04	808
9	+ 5.1	4.52	904
10	+ 6.0	5.00	999

LATERAL & LONGITUDINAL ACCELERATION SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (G'S)	SIG COND	
		INPUT VDC	DIGITS
0	- 1.0	0.20	040
1	- 0.8	0.68	136
2	- 0.6	1.16	232
3	0.4	1.64	328
4	0.2	2.12	424
5	0.0	2.60	520
6	+ 0.2	3.08	616
7	+ 0.4	3.56	712
8	+ 0.6	4.04	808
9	+ 0.8	4.52	904
10	+ 1.0	5.00	999

SIG RECORDING SEQ	
SIG CODE	SEQ
13-1	118
15-1	119
17-1	143

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
13-1	147
15-1	148
17-1	172

EM1 0001 31 858

R Triaxial Accelerometer Monitoring Schematic
R SCHEM 16

EFFECTIVITY: ALL

0018

L&R MLG HARD LANDING & GROSS WEIGHT SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (LBS X 10^3)	ACCURACY (%)	SIG COND VOLTS DC	SIG COND DIGITS
0	0	1	0.0	000
1	50		0.5	100
2	100		1.0	200
3	150		1.5	300
4	200		2.0	400
5	250		2.5	500
6	300		3.0	600
7	350		3.5	700
8	400		4.0	800
9	450		4.5	900
10	500	1	5.0	999

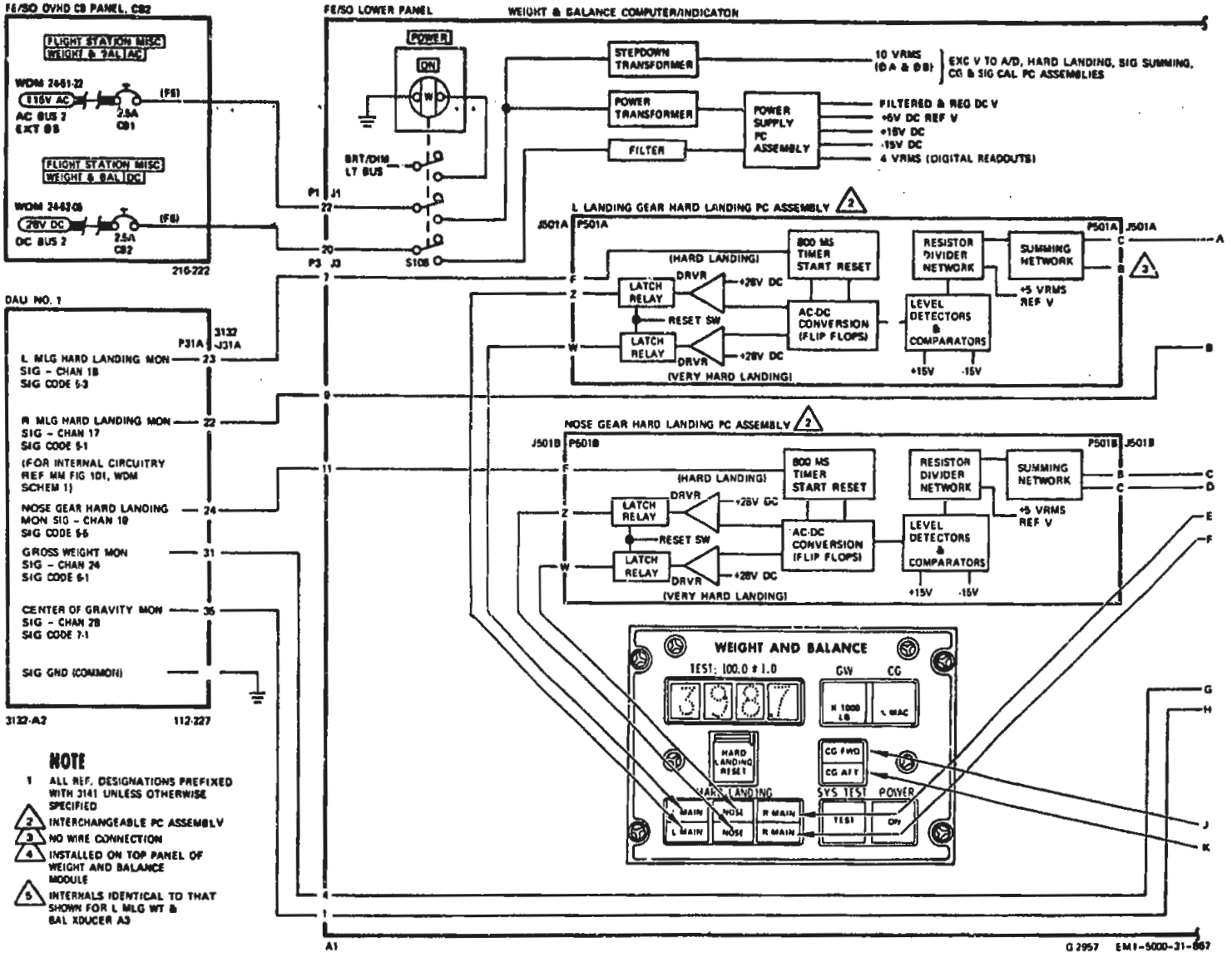
NOSE LANDING GEAR SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (LBS X 10^3)	ACCURACY (%)	SIG COND VOLTS DC	SIG COND DIGITS
0	0	1	0.0	000
1	25		0.5	100
2	50		1.0	200
3	75		1.5	300
4	100		2.0	400
5	125		2.5	500
6	150		3.0	600
7	175		3.5	700
8	200		4.0	800
9	225		4.5	900
10	250	1	5.0	999

CENTER OF GRAVITY SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (IN LBS X 10^6)	ACCURACY (%)	SIG COND VOLTS DC	SIG COND DIGITS
0	0.00	1	0.0	000
1	5.87		0.5	100
2	11.74		1.0	200
3	17.61		1.5	300
4	23.48		2.0	400
5	29.35		2.5	500
6	35.22		3.0	600
7	41.09		3.5	700
8	46.98		4.0	800
9	52.83		4.5	900
10	58.70	1	5.0	999

SIG RECORDING SEQ	
SIG CODE	SEQ
5-1	246
5-3	247
5-5	248
6-1	249
7-1	250

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
5-1	275
5-3	276
5-5	277
6-1	278
7-1	279

WIRING DIAGRAMS
31-32-10 31-41-01

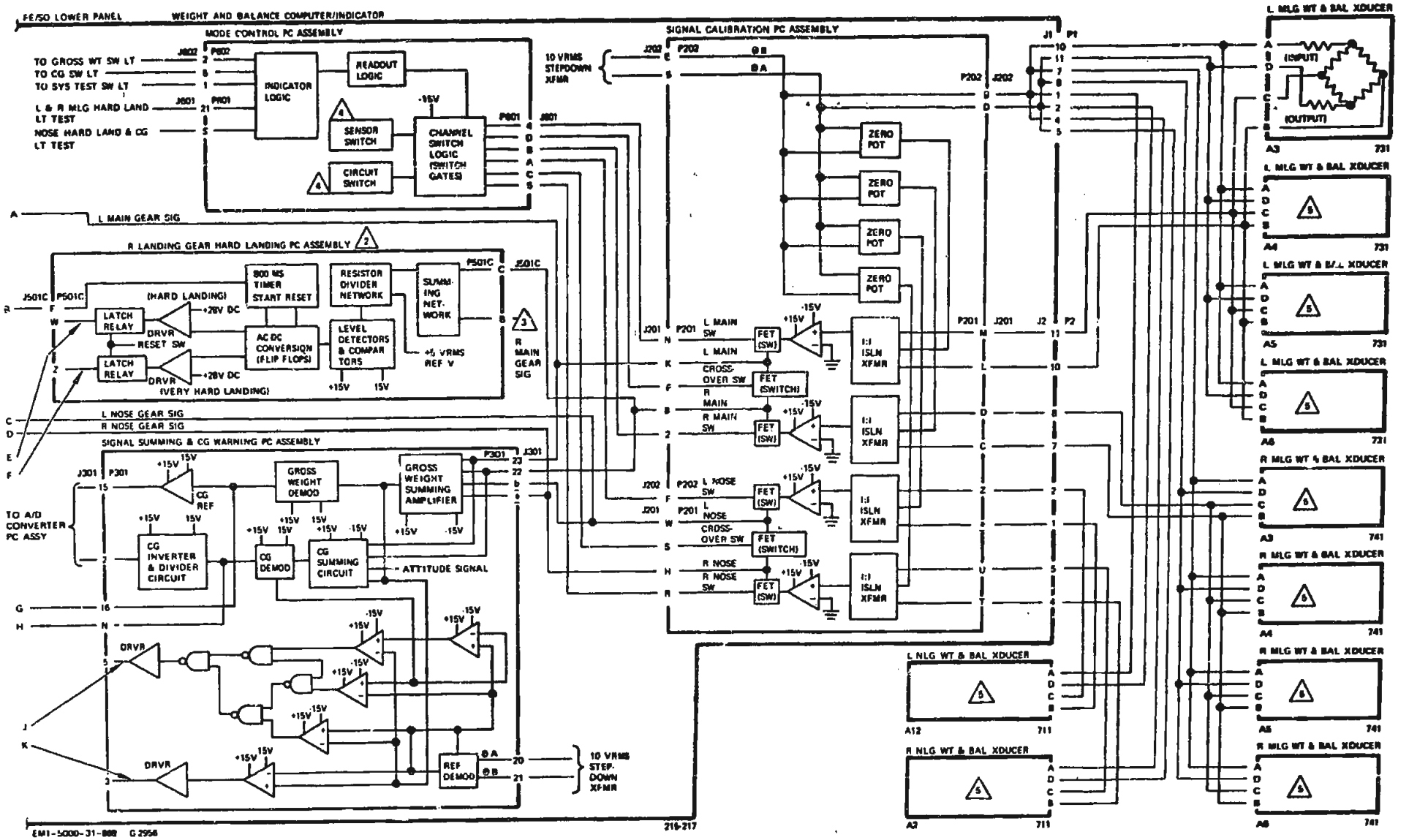


NOTE

1. ALL REF. DESIGNATIONS PREFIXED WITH 3141 UNLESS OTHERWISE SPECIFIED
2. INTERCHANGEABLE PC ASSEMBLY
3. NO WIRE CONNECTION
4. INSTALLED ON TOP PANEL OF WEIGHT AND BALANCE MODULE
5. INTERNALS IDENTICAL TO THAT SHOWN FOR L MLG WT & BAL XDUCER A3

R R Hard Landing, Gross Weight, and CG Monitoring Schematic
SCHEM 17 (Sheet 1)

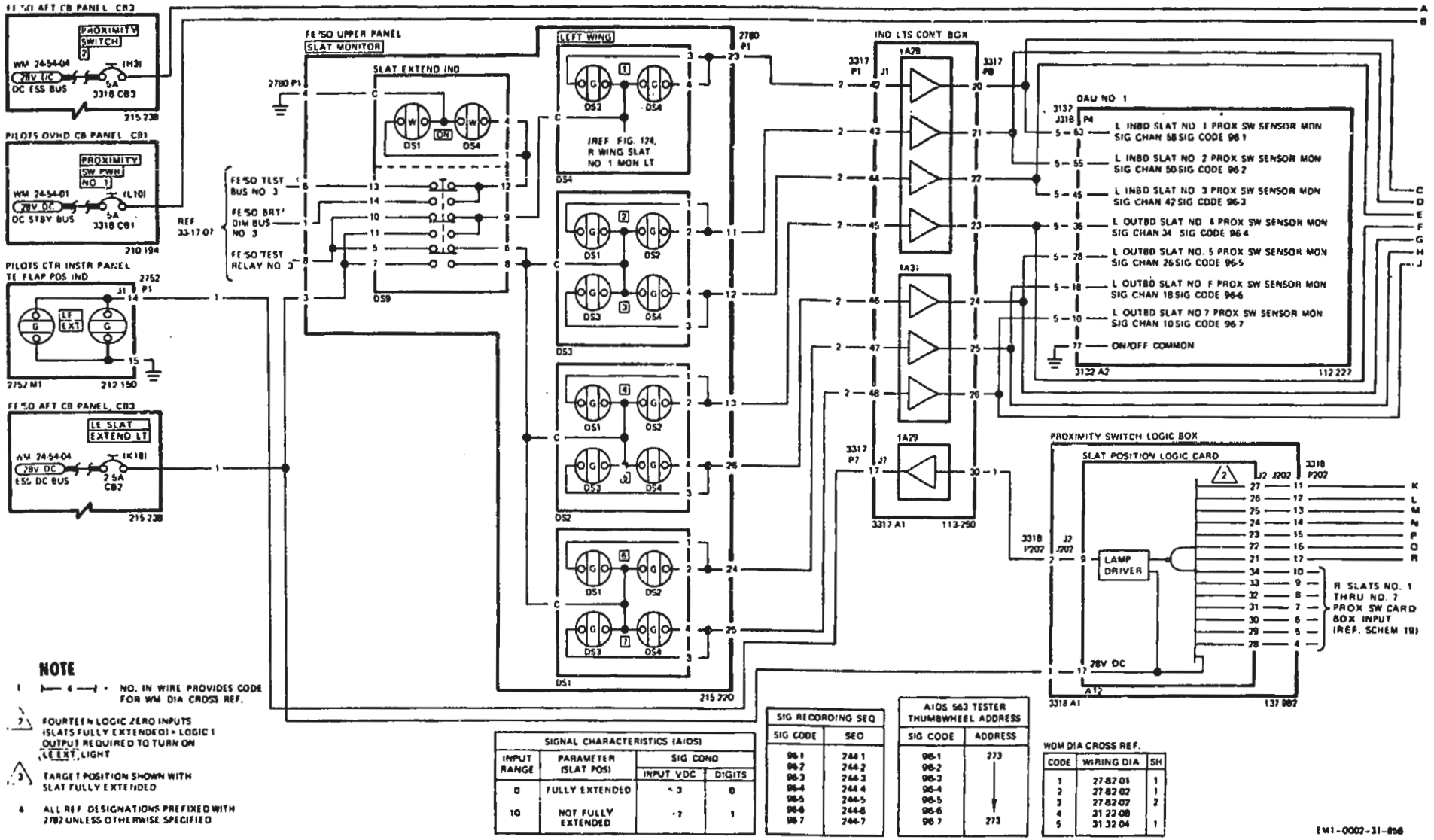
EFFECTIVITY: ALL



R Hard Landing, Gross Weight, and CG Monitoring Schematic
R SCHEM 17 (Sheet 2)

EFFECTIVITY: ALL

001B


FE 50 AFT CB PANEL CB2
PROXIMITY SWITCH 2
WM 24-54-04
28V DC
OC ESS BUS
5A
3318 CB3
215 238
PILOTS OVHD CB PANEL CB1
PROXIMITY SW PWR NO 1
WM 24-54-01
28V DC
OC STBY BUS
5A
3318 CB1
210 194
PILOTS CTR INSTR PANEL
TE FLAP POS IND
LE EXT
2752 M1
212 150
FE 50 AFT CB PANEL, CB3
LE SLAT EXTEND LT
WM 24-54-04
28V DC
ESS DC BUS
2.5A
CB7
215 238
FE 50 UPPER PANEL
SLAT MONITOR
SLAT EXTEND IND
ON
DS1
DS4
DS9
FE 50 TEST BUS NO 3
FE 50 BRT DIM BUS NO 3
FE 50 TEST RELAY NO 3
REF 33-17-07
LEFT WING
IREF FIG. 124, R WING SLAT NO 1 MON LT
DS1
DS2
DS3
DS4
215 220
IND LTS CONT BOX
1A28
1A30
1A29
3317 A1
113-250
DAU NO 1
3132 A2
112 227
L INBD SLAT NO 1 PROX SW SENSOR MON SIG CHAN 58 SIG CODE 96 1
L INBD SLAT NO 2 PROX SW SENSOR MON SIG CHAN 50 SIG CODE 96 2
L INBD SLAT NO 3 PROX SW SENSOR MON SIG CHAN 42 SIG CODE 96 3
L OUTBD SLAT NO 4 PROX SW SENSOR MON SIG CHAN 34 SIG CODE 96 4
L OUTBD SLAT NO. 5 PROX SW SENSOR MON SIG CHAN 26 SIG CODE 96 5
L OUTBD SLAT NO F PROX SW SENSOR MON SIG CHAN 18 SIG CODE 96 6
L OUTBD SLAT NO 7 PROX SW SENSOR MON SIG CHAN 10 SIG CODE 96 7
ON/OFF COMMON
PROXIMITY SWITCH LOGIC BOX
SLAT POSITION LOGIC CARD
LAMP DRIVER
28V DC
3318 A1
137 982
R SLATS NO. 1 THRU NO. 7 PROX SW CARD BOX INPUT (REF. SCHEM 18)

NOTE

1. ⊢— 6 —⊣ • NO. IN WIRE PROVIDES CODE FOR WM DIA CROSS REF.
2. FOURTEEN LOGIC ZERO INPUTS (SLATS FULLY EXTENDED) = LOGIC 1 OUTPUT REQUIRED TO TURN ON (LE EXT) LIGHT
3. TARGET POSITION SHOWN WITH SLAT FULLY EXTENDED
4. ALL REF DESIGNATIONS PREFIXED WITH 2782 UNLESS OTHERWISE SPECIFIED

SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (SLAT POS)	SIG COND	
		INPUT VDC	DIGITS
0	FULLY EXTENDED	< 3	0
10	NOT FULLY EXTENDED	> 7	1

SIG RECORDING SEQ	
SIG CODE	SEQ
96 1	244 1
96 2	244 2
96 3	244 3
96 4	244 4
96 5	244 5
96 6	244 6
96 7	244 7

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
96 1	273
96 2	↓
96 3	
96 4	
96 5	
96 6	
96 7	273

WDM DIA CROSS REF.

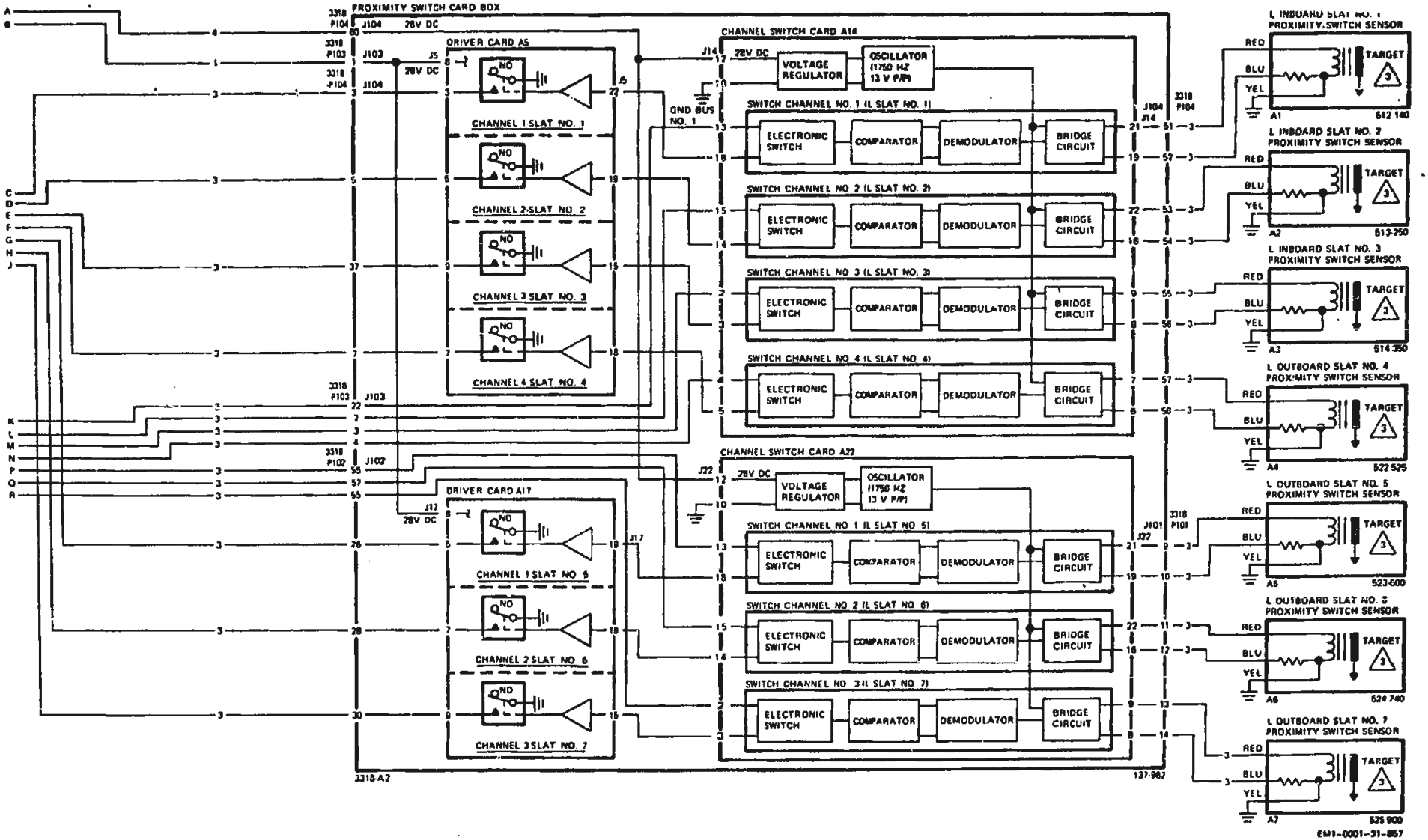
CODE	WIRING DIA	SH
1	27 82 01	1
2	27 82 02	1
3	27 82 02	2
4	31 22 08	1
5	31 32 04	1

EM1-0002-31-858

R Left Wing Slats Proximity Switch Sensor Monitoring Schematic
R SCHEM 18 (Sheet 1)

EFFECTIVITY: ALL

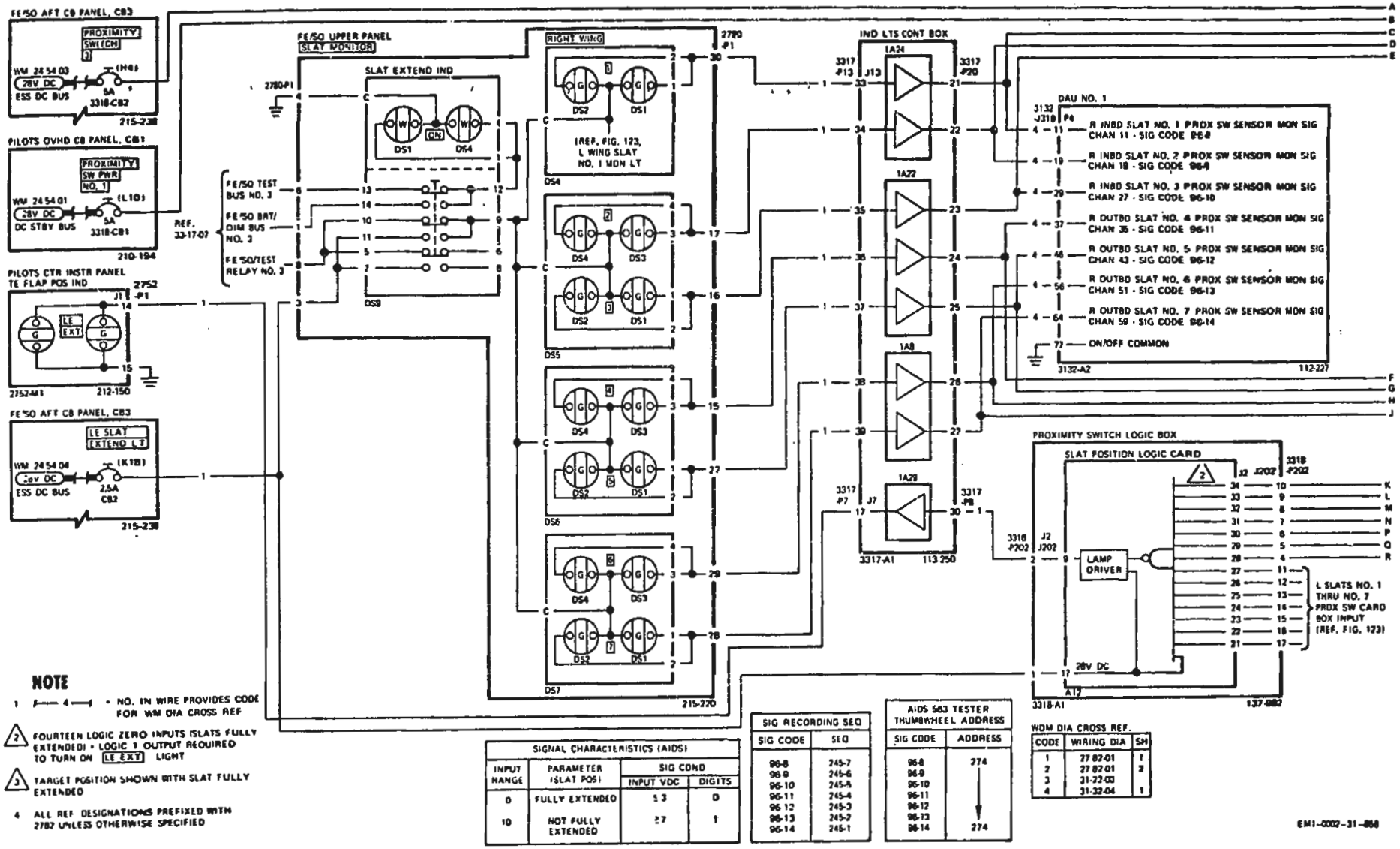
0018



R Left Wing Slats Proximity Switch Sensor Monitoring Schematic
R SCHEM 18 (Sheet 2)

EFFECTIVITY: ALL

001B



NOTE

1 ⟵ 4 ⟶ NO. IN WIRE PROVIDES CODE FOR WM DIA CROSS REF

2 FOURTEEN LOGIC ZERO INPUTS (SLATS FULLY EXTENDED) + LOGIC 1 OUTPUT REQUIRED TO TURN ON LE EXT LIGHT

3 TARGET POSITION SHOWN WITH SLAT FULLY EXTENDED

4 ALL REF DESIGNATIONS PREFIXED WITH 2782 UNLESS OTHERWISE SPECIFIED

SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (SLAT POSI	SIG COND	
		INPUT VDC	DIGITS
0	FULLY EXTENDED	5.3	0
10	NOT FULLY EXTENDED	27	1

SIG RECORDING SEQ	
SIG CODE	SEQ
96-8	245-7
96-9	245-6
96-10	245-5
96-11	245-4
96-12	245-3
96-13	245-2
96-14	245-1

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
96-8	274
96-9	
96-10	
96-11	
96-12	
96-13	
96-14	274

WDM DIA CROSS REF.

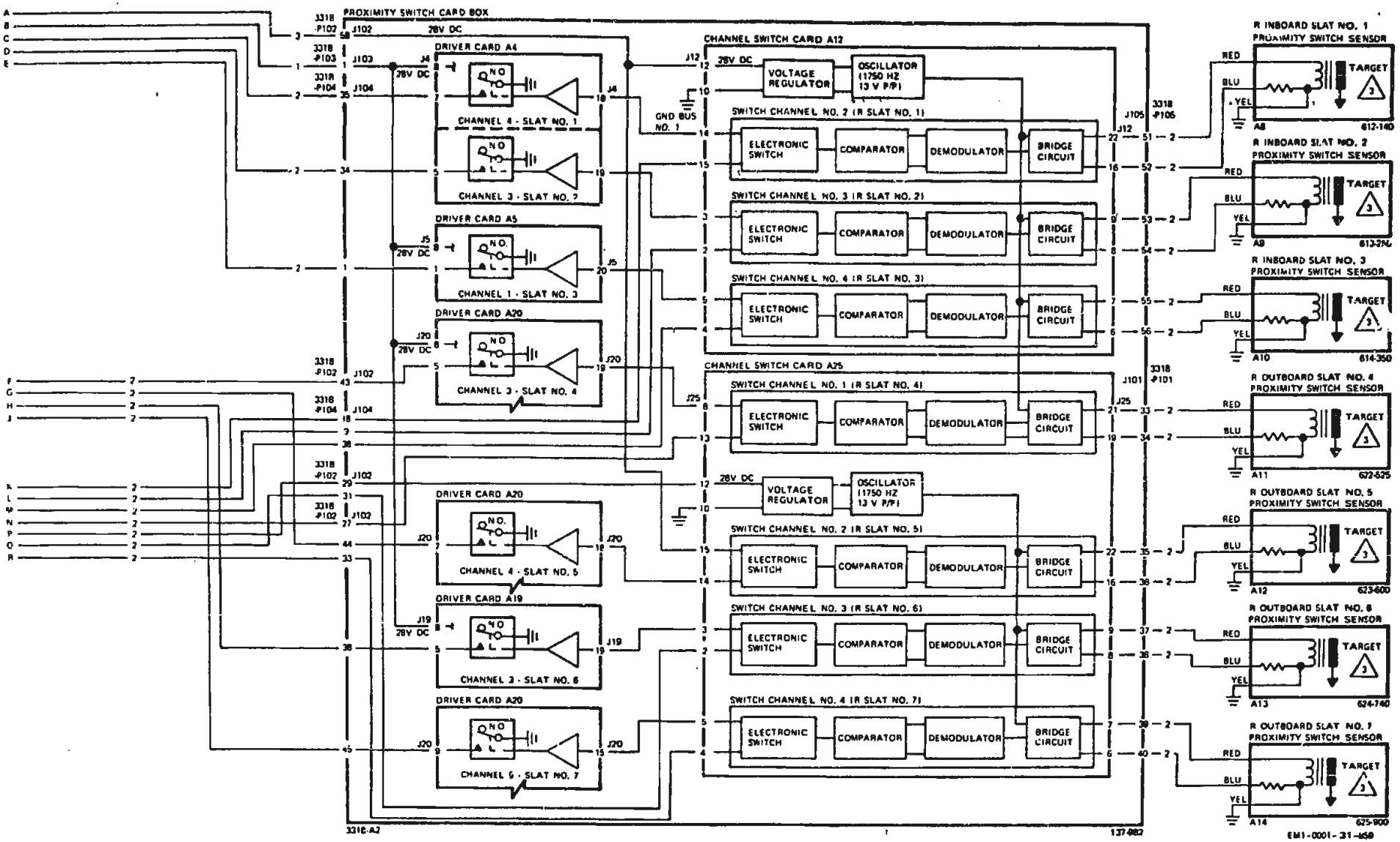
CODE	WIRING DIA	SH
1	27 82-01	1
2	27 82-01	2
3	31-22-03	
4	31-32-04	1

EM1-0002-31-858

R
R
R

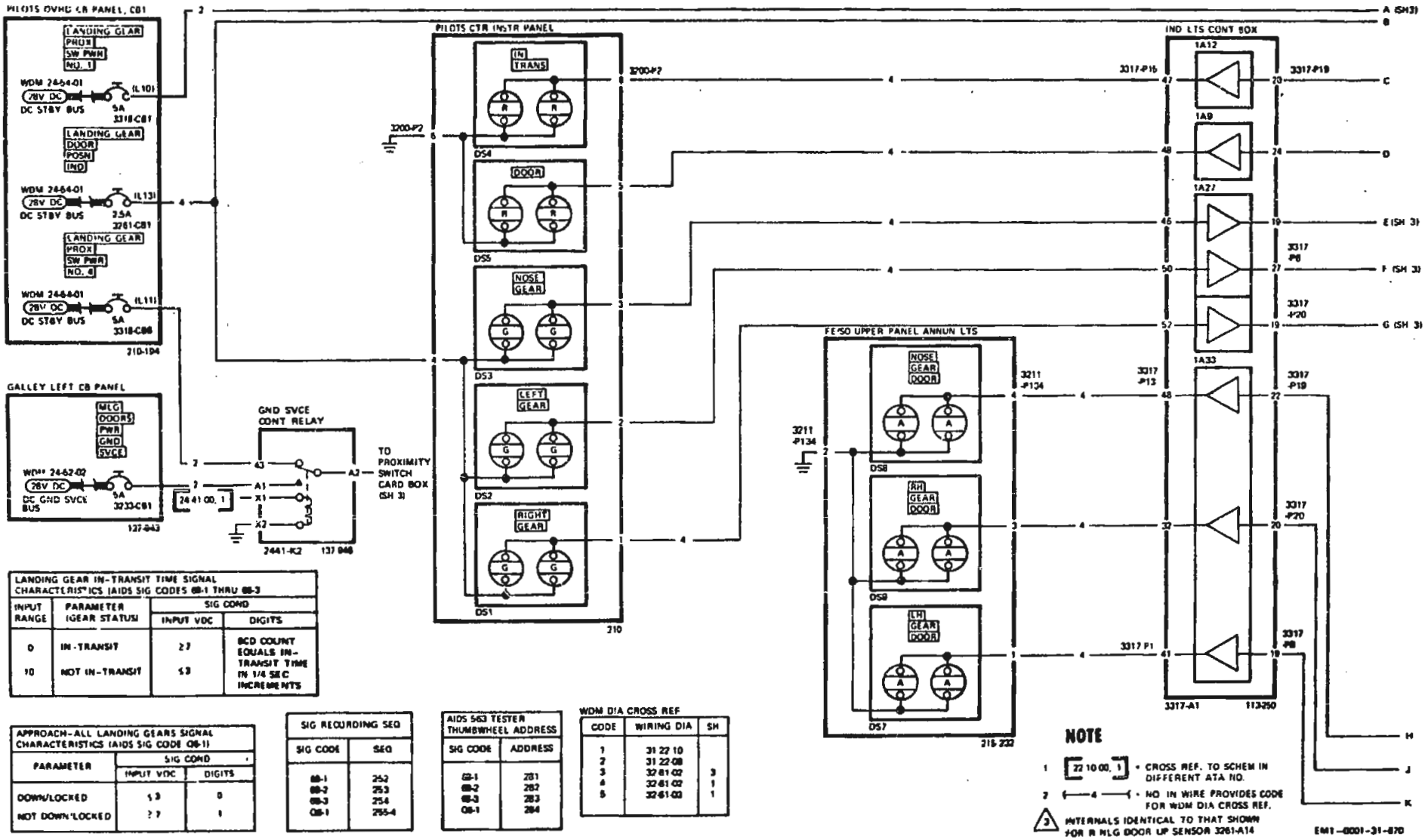
Right Wing Slats Proximity Switch Sensor Monitoring Schematic SCHEM 19 (Sheet 1)

EFFECTIVITY: ALL


PROXIMITY SWITCH CARD BOX
3318 -P102
3318 -P103
3318 -P104
J102
J103
J104
28V DC
DRIVER CARD A4
CHANNEL 4 - SLAT NO. 1
CHANNEL 3 - SLAT NO. 2
DRIVER CARD A5
CHANNEL 1 - SLAT NO. 3
DRIVER CARD A20
CHANNEL 3 - SLAT NO. 4
DRIVER CARD A20
CHANNEL 4 - SLAT NO. 5
DRIVER CARD A19
CHANNEL 3 - SLAT NO. 6
DRIVER CARD A20
CHANNEL 6 - SLAT NO. 7
GND BUS NO. 1
CHANNEL SWITCH CARD A12
CHANNEL SWITCH CARD A25
VOLTAGE REGULATOR
OSCILLATOR (1750 HZ 13 V P/P)
SWITCH CHANNEL NO. 2 (R SLAT NO. 1)
SWITCH CHANNEL NO. 3 (R SLAT NO. 2)
SWITCH CHANNEL NO. 4 (R SLAT NO. 3)
SWITCH CHANNEL NO. 1 (R SLAT NO. 4)
SWITCH CHANNEL NO. 2 (R SLAT NO. 5)
SWITCH CHANNEL NO. 3 (R SLAT NO. 6)
SWITCH CHANNEL NO. 4 (R SLAT NO. 7)
ELECTRONIC SWITCH
COMPARATOR
DEMODULATOR
BRIDGE CIRCUIT
J105 3318 -P105
J101 3318 -P101
R INBOARD SLAT NO. 1 PROXIMITY SWITCH SENSOR
R INBOARD SLAT NO. 2 PROXIMITY SWITCH SENSOR
R INBOARD SLAT NO. 3 PROXIMITY SWITCH SENSOR
R OUTBOARD SLAT NO. 4 PROXIMITY SWITCH SENSOR
R OUTBOARD SLAT NO. 5 PROXIMITY SWITCH SENSOR
R OUTBOARD SLAT NO. 6 PROXIMITY SWITCH SENSOR
R OUTBOARD SLAT NO. 7 PROXIMITY SWITCH SENSOR
RED
BLU
YEL
TARGET
A8 612-140
A9 613-240
A10 614-350
A11 622-625
A12 623-600
A13 624-740
A14 625-900
3318-A2
137-082
EM1-0001-31-460

R Right Wing Slats Proximity Switch Sensor
R Monitoring Schematic
R SCHEM 19 (Sheet 2)

EFFECTIVITY: ALL



LANDING GEAR IN-TRANSIT TIME SIGNAL CHARACTERISTICS (AIDS SIG CODES 08-1 THRU 08-3			
INPUT RANGE	PARAMETER (GEAR STATUS)	SIG COND	
		INPUT VDC	DIGITS
0	IN-TRANSIT	≥7	BCD COUNT EQUALS IN-TRANSIT TIME IN 1/4 SEC INCREMENTS
10	NOT IN-TRANSIT	≤3	

APPROACH-ALL LANDING GEARS SIGNAL CHARACTERISTICS (AIDS SIG CODE 08-1)		
PARAMETER	SIG COND	
	INPUT VDC	DIGITS
DOWN/LOCKED	≤3	0
NOT DOWN/LOCKED	≥7	1

SIG RECORDING SEQ	
SIG CODE	SEQ
08-1	252
08-2	253
08-3	254
08-1	255-4

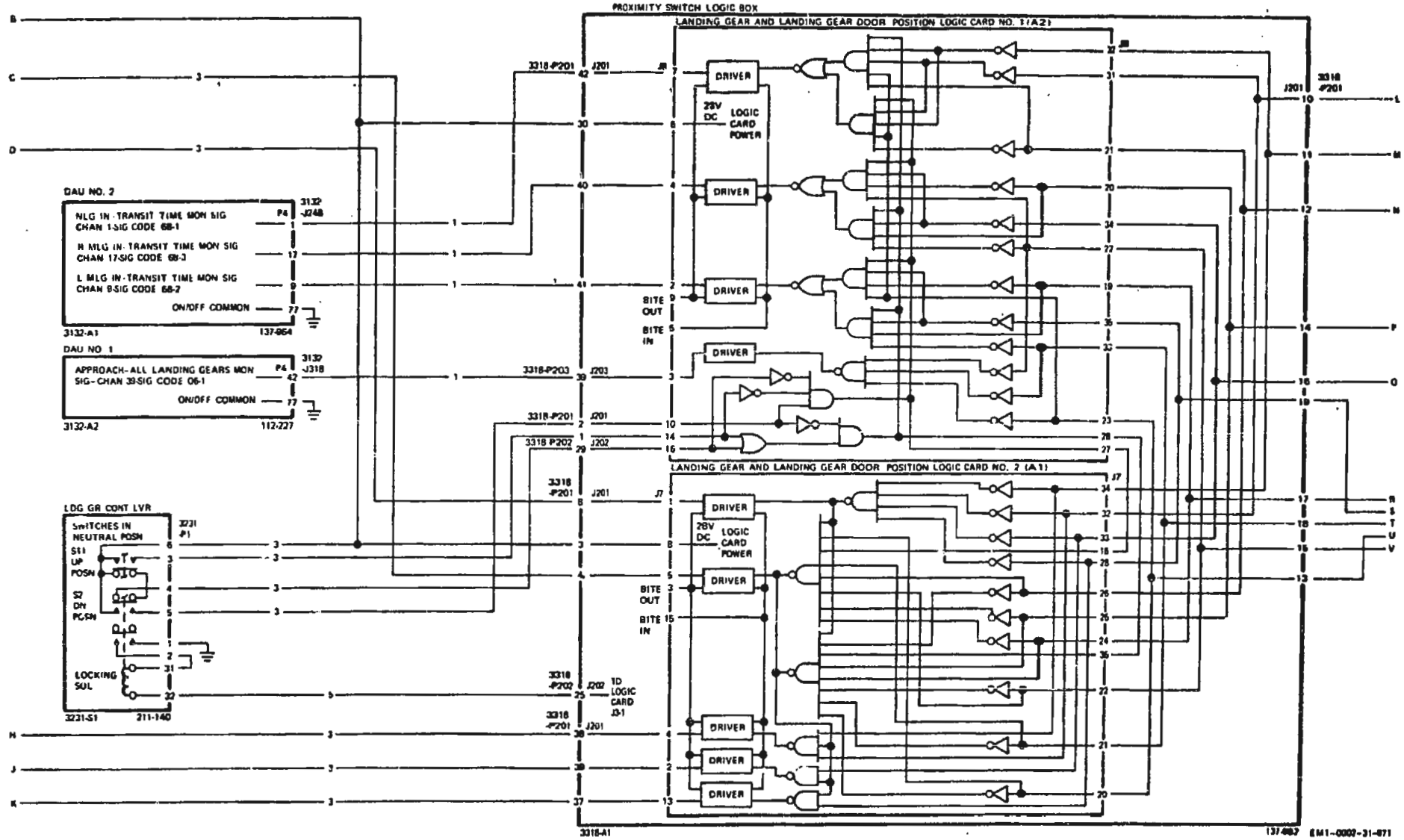
AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
08-1	281
08-2	282
08-3	283
08-1	284

WDM DIA CROSS REF		
CODE	WIRING DIA	SH
1	31 22 10	
2	31 22 08	
3	32 61 02	3
4	32 61 02	1
5	32 61 03	1

R Landing Gear In-Transit Time and Approach - All Landing
R Gears Position Monitoring Schematic
R SCHEM 20 (Sheet 1)

EFFECTIVITY: ALL

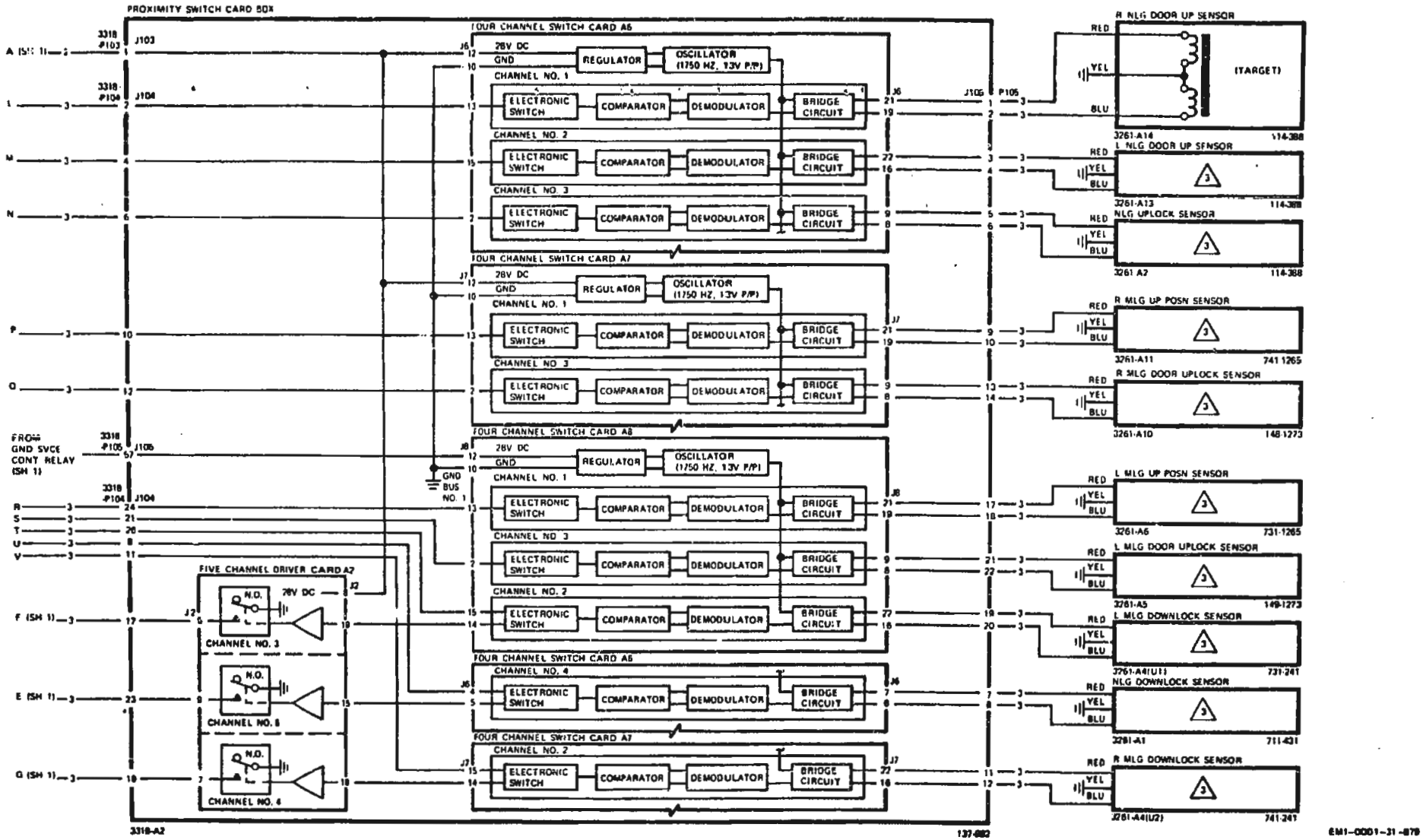
001B



R Landing Gear In-Transit Time and Approach - All Landing
R Gears Position Monitoring Schematic
R SCHEM 20 (Sheet 2)

EFFECTIVITY: ALL

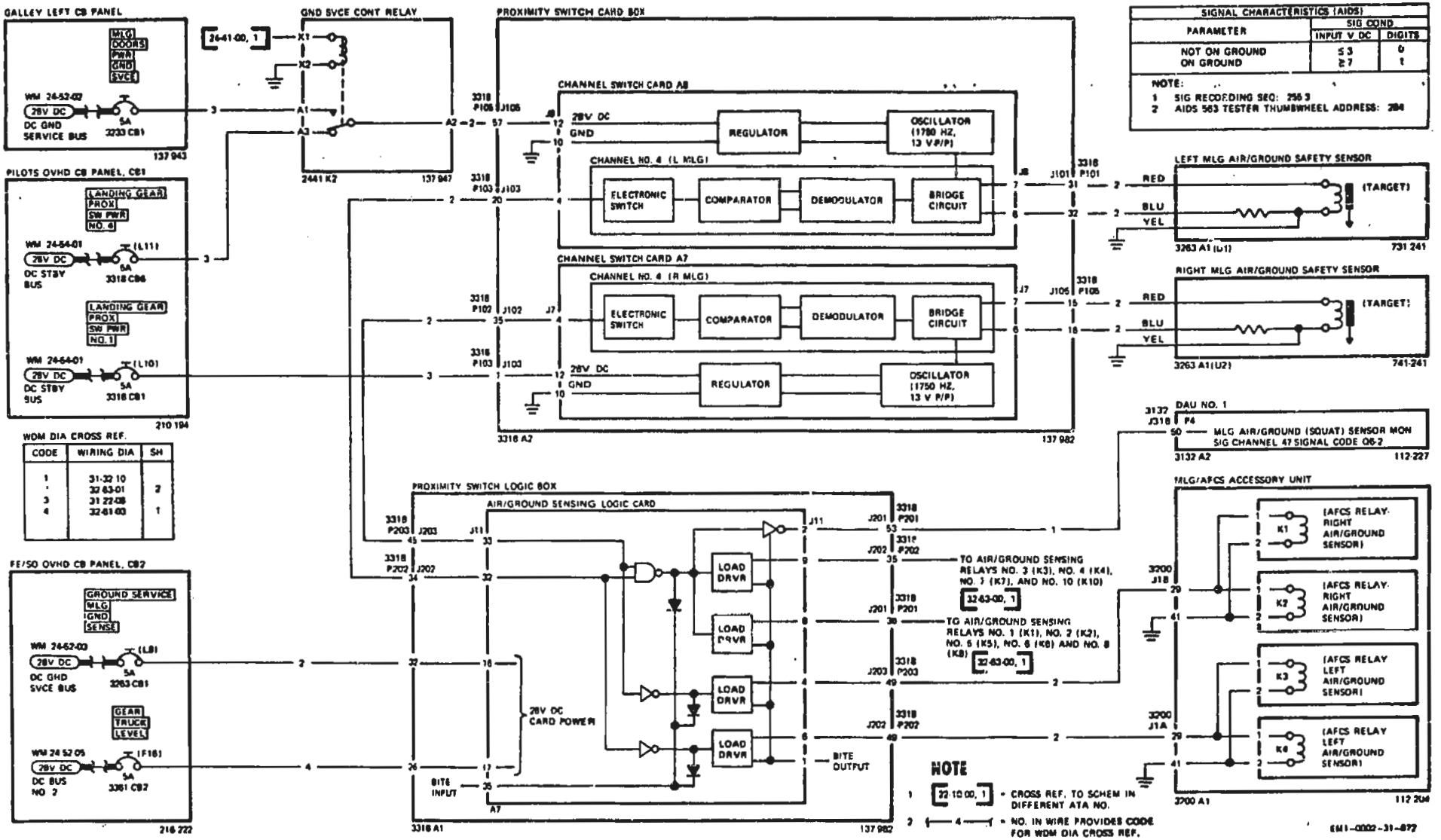
001B



R Landing Gear In-Transit Time and Approach - All Landing
R Gears Position Monitoring Schematic
R SCHEM 20 (Sheet 3)

EFFECTIVITY: ALL

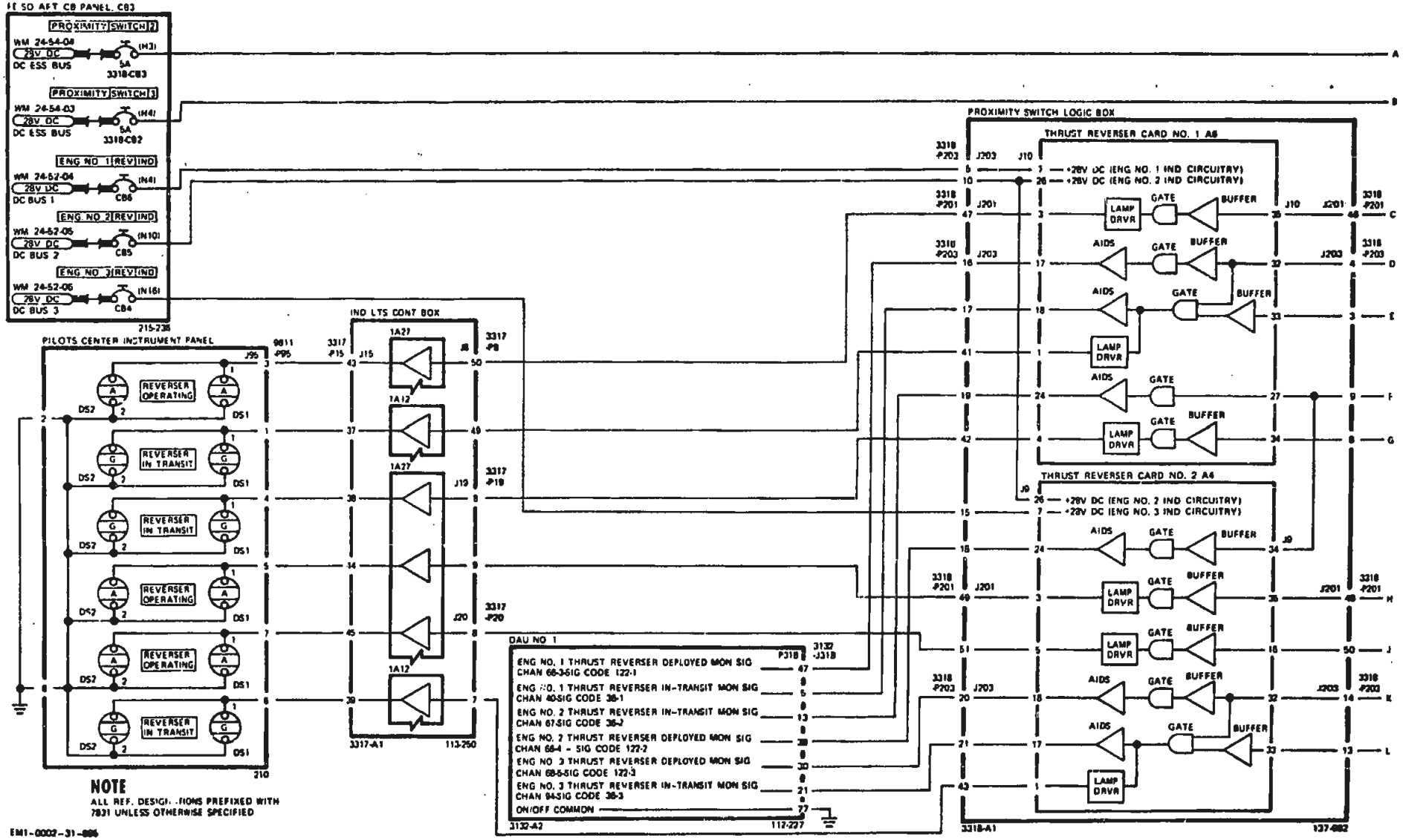
001B



R Approach - Air/Ground Sensor Monitoring Schematic
R SCHEM 21

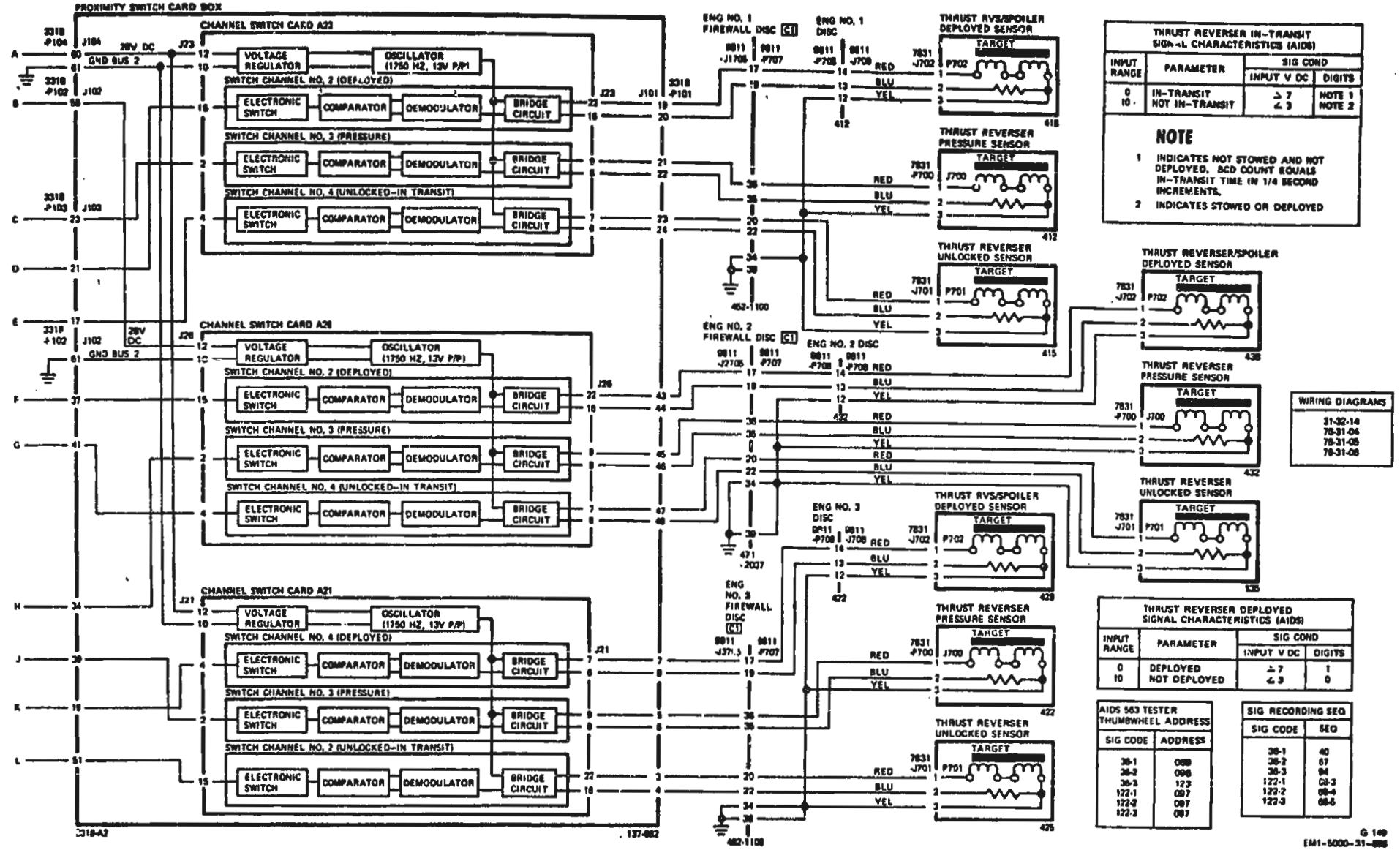
EFFECTIVITY: ALL

0018


PROXIMITY SWITCH 2
PROXIMITY SWITCH 1
PROXIMITY SWITCH 3
ENG NO 1 REV IND
ENG NO 2 REV IND
ENG NO 3 REV IND
28V DC
DC ESS BUS
DC BUS 1
DC BUS 2
DC BUS 3
5A
CB6
CB5
CB4
IND LTS CONT BOX
PILOTS CENTER INSTRUMENT PANEL
REVERSER OPERATING
REVERSER IN TRANSIT
PROXIMITY SWITCH LOGIC BOX
THRUST REVERSER CARD NO. 1 A6
THRUST REVERSER CARD NO. 2 A4
+28V DC (ENG NO. 1 IND CIRCUITRY)
+28V DC (ENG NO. 2 IND CIRCUITRY)
+28V DC (ENG NO. 3 IND CIRCUITRY)
LAMP DRVR
GATE
BUFFER
AIDS
DAU NO 1
ENG NO. 1 THRUST REVERSER DEPLOYED MON SIG
ENG NO. 1 THRUST REVERSER IN-TRANSIT MON SIG
ENG NO. 2 THRUST REVERSER IN-TRANSIT MON SIG
ENG NO. 2 THRUST REVERSER DEPLOYED MON SIG
ENG NO 3 THRUST REVERSER DEPLOYED MON SIG
ENG NO. 3 THRUST REVERSER IN-TRANSIT MON SIG
ON/OFF COMMON
NOTE
ALL REF. DESIGN. TIONS PREFIXED WITH 7831 UNLESS OTHERWISE SPECIFIED

R Engine Thrust Reverser In-Transit and Deployed
R Monitoring Schematic
R SCHEM 22 (Sheet 1)

EFFECTIVITY: ALL



THRUST REVERSER IN-TRANSIT SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER	SIG COND	
		INPUT V DC	DIGITS
0	IN-TRANSIT	≥ 7	NOTE 1
10	NOT IN-TRANSIT	≤ 3	NOTE 2

NOTE

1 INDICATES NOT STOWED AND NOT DEPLOYED. BCD COUNT EQUALS IN-TRANSIT TIME IN 1/4 SECOND INCREMENTS.

2 INDICATES STOWED OR DEPLOYED

WIRING DIAGRAMS
31-32-14
78-31-04
78-31-05
78-31-08

THRUST REVERSER DEPLOYED SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER	SIG COND	
		INPUT V DC	DIGITS
0	DEPLOYED	≥ 7	1
10	NOT DEPLOYED	≤ 3	0

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
38-1	089
38-2	096
38-3	123
122-1	087
122-2	087
122-3	087

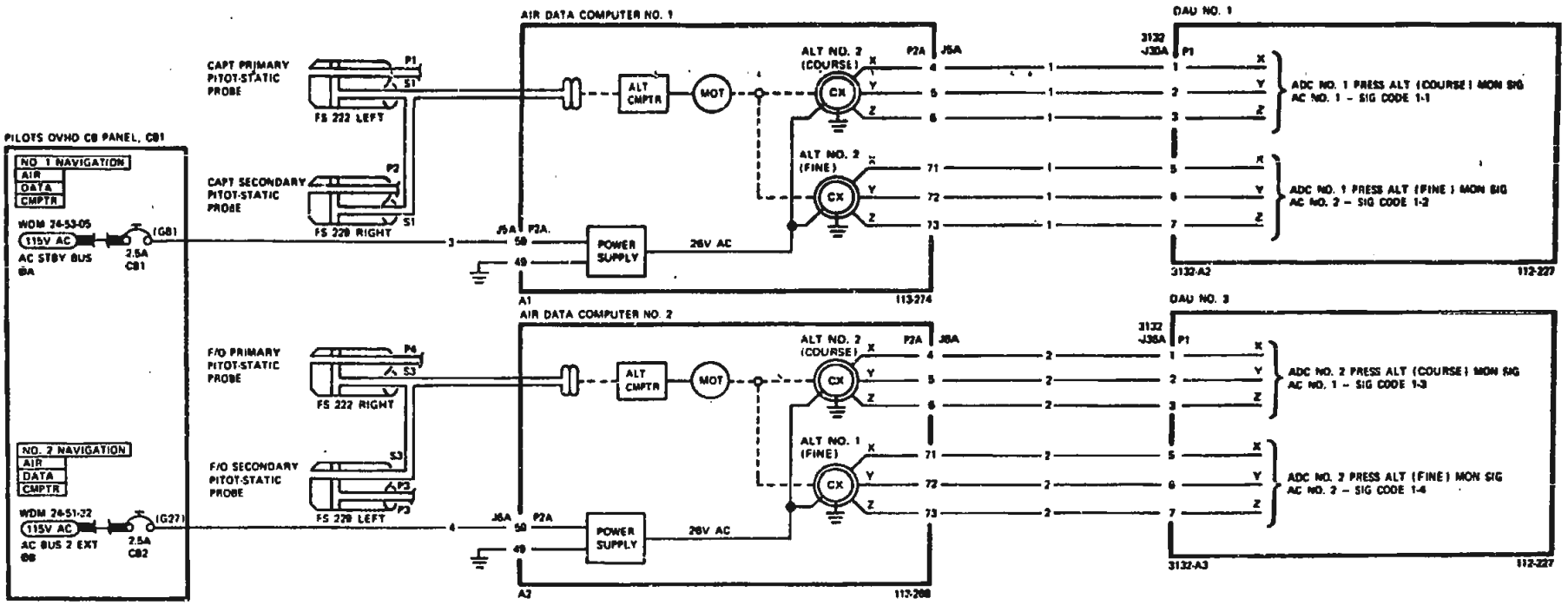
SIG RECORDING SEQ	
SIG CODE	SEQ
38-1	40
38-2	67
38-3	94
122-1	02-3
122-2	03-4
122-3	03-5

G 149
EM1-5000-31-[illegible]

R Engine Thrust Reverser In-Transit and Deployed
R Monitoring Schematic
R SCHEM 22 (Sheet 2)

EFFECTIVITY: ALL

0018


AIR DATA COMPUTER NO. 1
AIR DATA COMPUTER NO. 2
DAU NO. 1
DAU NO. 3
PILOTS OVHD CB PANEL, CB1
NO 1 NAVIGATION AIR DATA CMPTR
NO. 2 NAVIGATION AIR DATA CMPTR
CAPT PRIMARY PITOT-STATIC PROBE
CAPT SECONDARY PITOT-STATIC PROBE
F/O PRIMARY PITOT-STATIC PROBE
F/O SECONDARY PITOT-STATIC PROBE
FS 222 LEFT
FS 220 RIGHT
FS 222 RIGHT
FS 220 LEFT
WDM 24-53-05
WDM 24-51-22
115V AC
AC STBY BUS 6A
AC BUS 2 EXT 6B
2.5A CB1
2.5A CB2
ALT CMPTR
MOT
ALT NO. 2 (COURSE)
ALT NO. 2 (FINE)
ALT NO. 1 (FINE)
POWER SUPPLY
26V AC
ADC NO. 1 PRESS ALT (COURSE) MON SIG AC NO. 1 – SIG CODE 1-1
ADC NO. 1 PRESS ALT (FINE) MON SIG AC NO. 2 – SIG CODE 1-2
ADC NO. 2 PRESS ALT (COURSE) MON SIG AC NO. 1 – SIG CODE 1-3
ADC NO. 2 PRESS ALT (FINE) MON SIG AC NO. 2 – SIG CODE 1-4
3132-A2
3132-A3
113-227
113-274
113-288

PRESSURE ALTITUDE (COURSE) SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (FT X 10^3)	ACCURACY (± FEET)	SIG COND INPUT (DEG)	SIG COND DIGITS
MIN	- 0.9450		357.480	993
0	0.00	15	0.00	000
1	4.905	17.5	13.32	37
2	9.990	20	26.64	74
3	14.985	25	39.96	111
4	19.980	30	53.28	148
5	24.975	35	66.60	185
6	29.970	40	79.92	222
7	34.965	50	93.24	259
8	39.960	60	106.56	296
9	44.955	70	119.88	333
10	49.950	80	133.32	370

PRESSURE ALTITUDE (FINE) SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (FT X 10^3)	ACCURACY (± FEET)	SIG COND INPUT (DEG)	SIG COND DIGITS
0	0.0		0	0
1	0.5		36	100
2	1.0	15	72	200
3	1.5		108	300
4	2.0		144	400
5	2.5		180	500
6	3.0		216	600
7	3.5		252	700
8	4.0		288	800
9	4.5		324	900
10	5.0	15	360	999

SIG RECORDING SEQ

SIG CODE	SEQ
1-1	108
1-2	109
1-3	103
1-4	104

AIDS 663 TESTER THUMBWHEEL ADDRESS

1-1	137
1-2	138
1-3	132
1-4	133

WDM DIA CROSS REF

CODE	WIRING DIA	SH
1	31-32 11	1
2	31-32 11	2
3	34-14-01	2
4	34-14-02	2

NOTE

1 ⟵4⟶ = NO IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

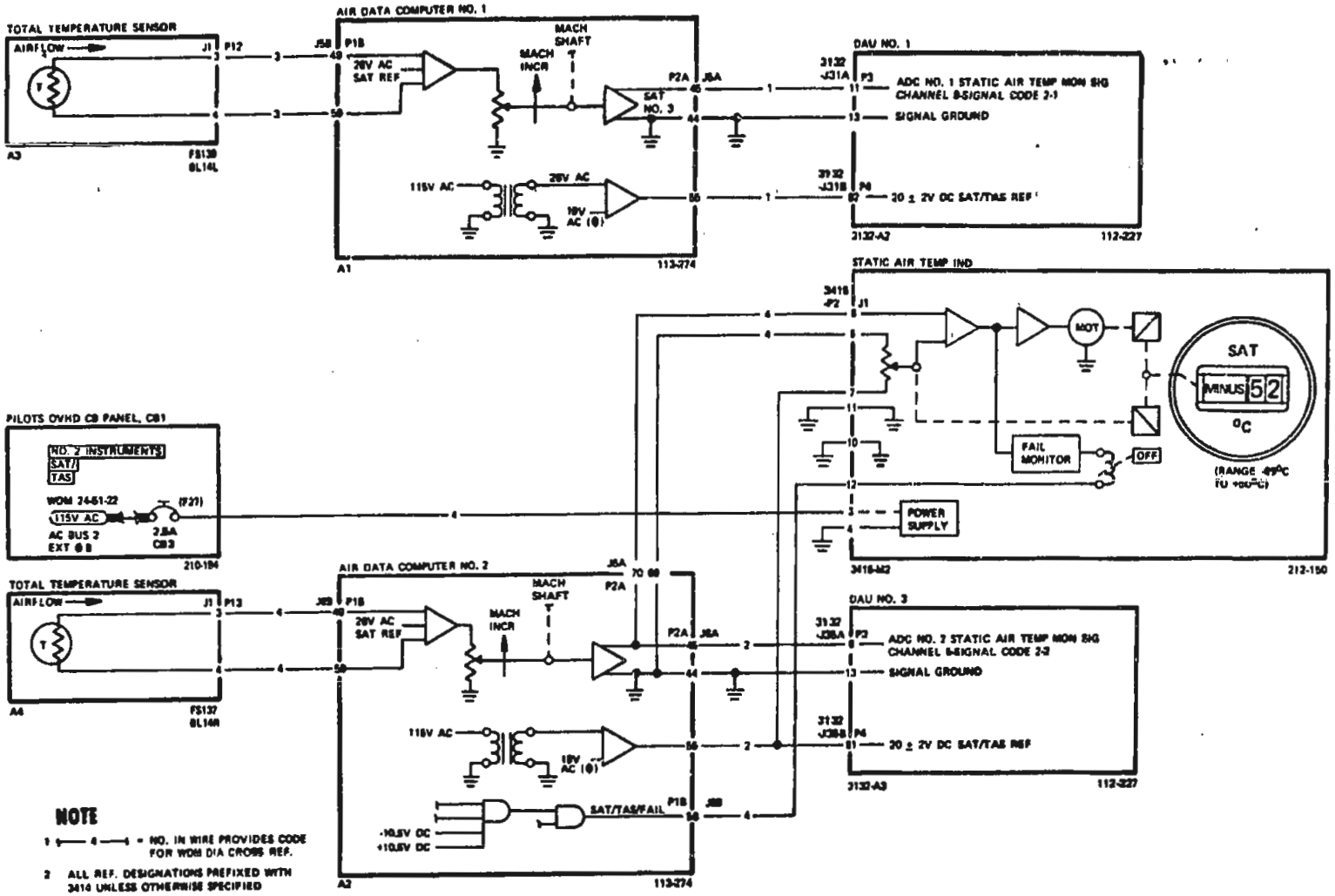
2 ALL REF DESIGNATIONS PREFIXED WITH 3414 UNLESS OTHERWISE SPECIFIED

EM1-0001-31-079

R ADC Course and Fine Pressure Altitude Monitoring Schematic
R SCHEM 23

EFFECTIVITY: ALL

001B



SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (DEG C)	ACCURACY ± DEG C	SIG COND	
			INPUT VDC	DIGITS
0	-99	1	3.188	638
1	-84	1	3.323	665
2	-68	1	3.461	692
3	-53	1	3.586	717
4	-37	1	3.714	743
5	-22	1	3.839	768
6	-7	1	3.943	789
7	+8	1	4.060	812
8	+24	1	4.186	838
9	+40	1	4.277	856
10	+56	1	4.378	876

SIG RECORDING SIG
SIG CODE	SEG
2-1	001
2-2	00

AIDS 583 TESTER THUMBWHEEL ADDRESS
SIG CODE	ADDRESS
2-1	130
2-2	128

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31-32-11	1
2	31-32-11	2
3	36-14-01	2
4	36-14-01	2

NOTE

1 ⟵ 4 ⟵ 4 = NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATIONS PREFIXED WITH 3414 UNLESS OTHERWISE SPECIFIED

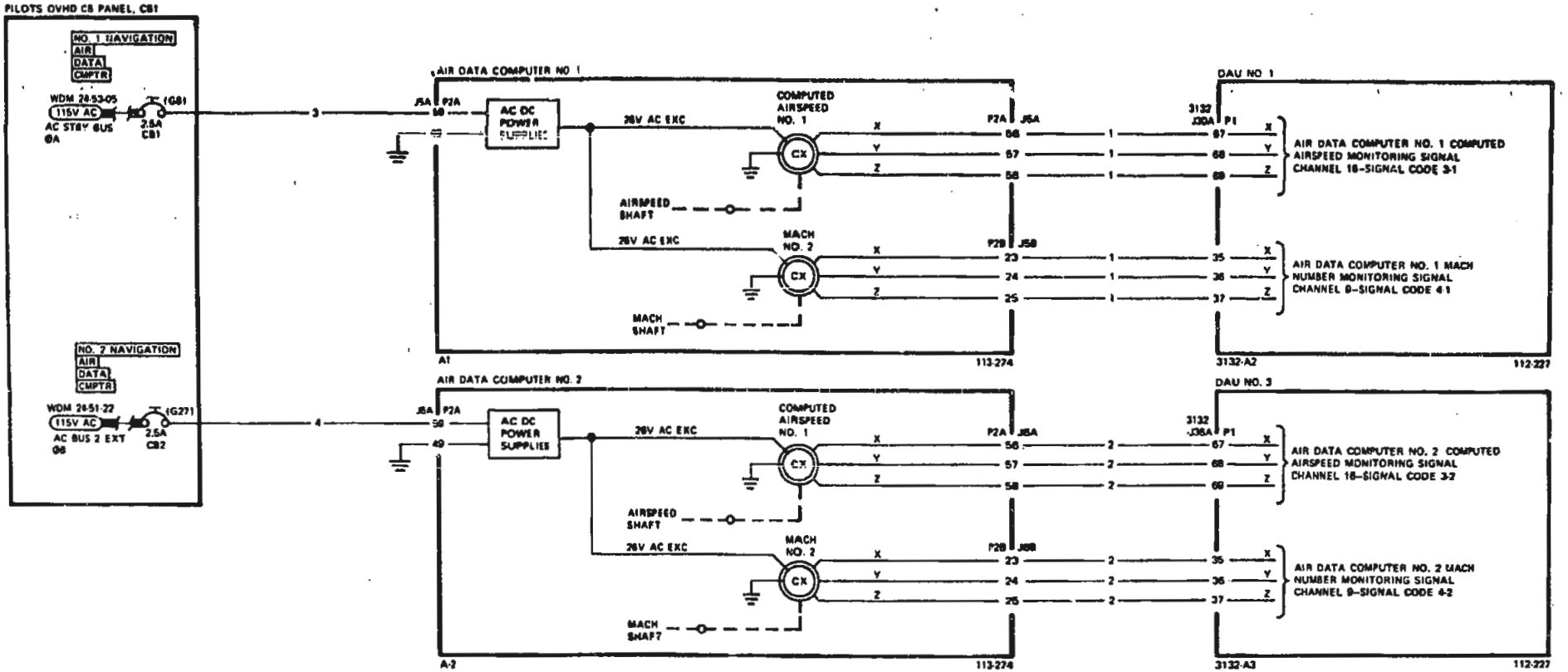
8M1-0002-31-001

R
R

ADC Static Air Temperature Monitoring Schematic
SCHEM 24

EFFECTIVITY: ALL

0018


PILOTS OVHD CB PANEL, CB1
NO. 1 NAVIGATION AIR DATA CMPTR
WDM 28-53-05
115V AC
(G8)
AC STBY BUS 0A
2.5A CB1
NO. 2 NAVIGATION AIR DATA CMPTR
WDM 28-51-22
115V AC
(G27)
AC BUS 2 EXT 0B
2.5A CB2
AIR DATA COMPUTER NO. 1
AC DC POWER SUPPLIES
26V AC EXC
COMPUTED AIRSPEED NO. 1
AIRSPEED SHAFT
MACH NO. 2
MACH SHAFT
A1
113-274
DAU NO. 1
AIR DATA COMPUTER NO. 1 COMPUTED AIRSPEED MONITORING SIGNAL CHANNEL 16-SIGNAL CODE 3-1
AIR DATA COMPUTER NO. 1 MACH NUMBER MONITORING SIGNAL CHANNEL 9-SIGNAL CODE 4-1
3132-A2
112-227
AIR DATA COMPUTER NO. 2
A-2
DAU NO. 3
AIR DATA COMPUTER NO. 2 COMPUTED AIRSPEED MONITORING SIGNAL CHANNEL 16-SIGNAL CODE 3-2
AIR DATA COMPUTER NO. 2 MACH NUMBER MONITORING SIGNAL CHANNEL 9-SIGNAL CODE 4-2
3132-A3

NOTE

1 ⊢—4—⊣ * NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATION PREFIXED WITH 3414 UNLESS OTHERWISE SPECIFIED

ADC NO. 1 & NO. 2 COMPUTED AIRSPEED SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (KTS ± 10)	ACCURACY (±KTS)	SIG COND INPUT DEG	SIG COND DIGITS
0	1.0	2.0	00	000
1	1.5	1.5	36	100
2	2.0		72	200
3	2.5	1.5	108	300
4	3.0		144	400
5	3.5	2.25	180	500
6	4.0		216	600
7	4.5	3.0	252	700
8	5.0		288	800
9	0.5	5.0	324	900
10	1.0	2.0	360	999

ADC NO. 1 & NO. 2 MACH NUMBER SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (MACH)	ACCURACY (±%)	SIG COND INPUT DEG	SIG COND DIGITS
0	0.2	0.01	00	000
1	0.3	0.01	36	100
2	0.4	0.01	72	200
3	0.5	0.005	108	300
4	0.6	0.005	144	400
5	0.7	0.005	180	500
6	0.8	0.005	216	600
7	0.9	0.005	252	700
8	1.0	0.01	288	800
9	0.1	0.01	324	900
10	0.2	0.01	360	999

SIG RECORDING SEQ	
SIG CODE	SEQ
3-1	110
3-2	105
4-1	107
4-2	108

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
3-1	139
3-2	134
4-1	136
4-2	135

WDM DIA CROSS REF.

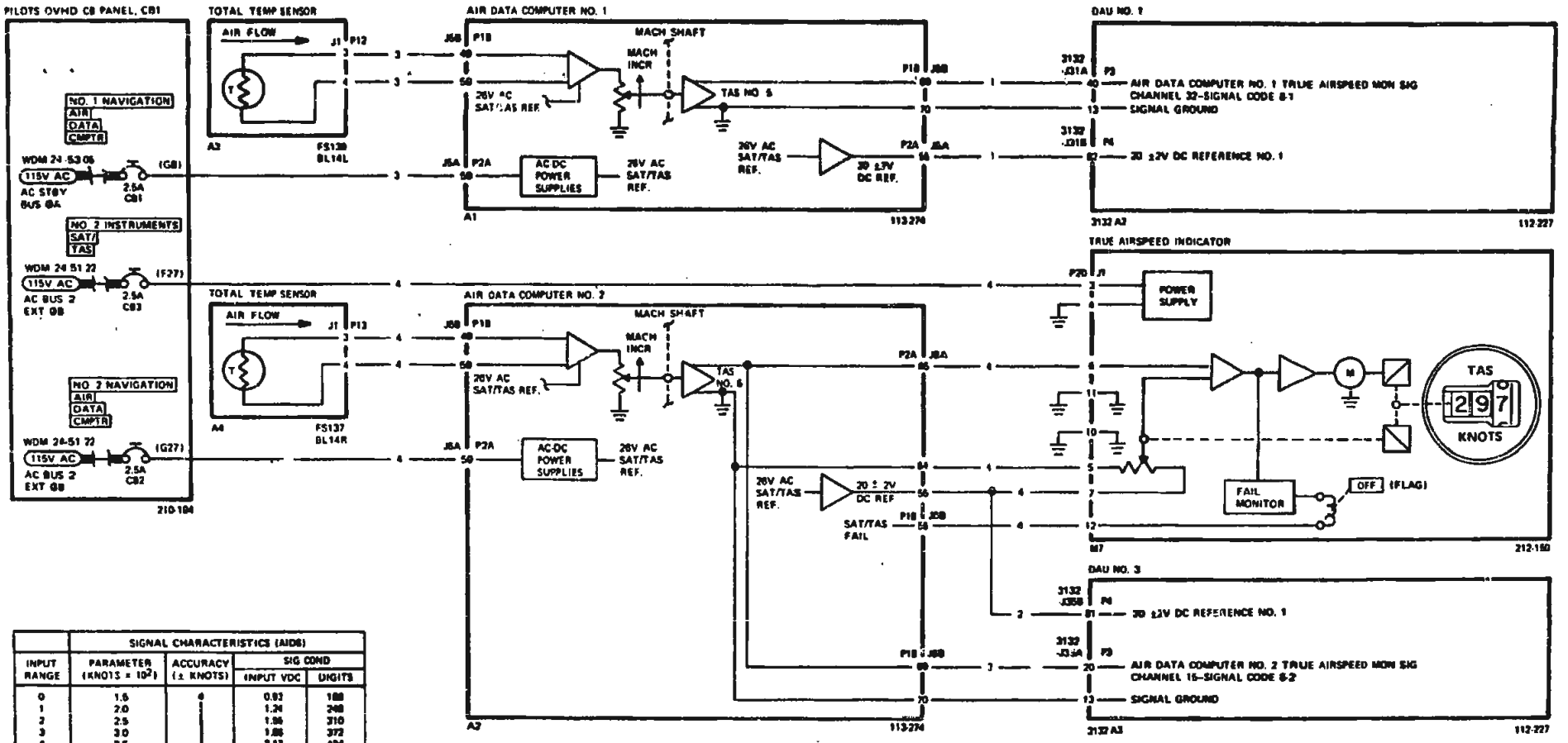
CODE	WIRING DIA	SH
1	31-32-11	1
2	31-32-11	2
3	34-14-01	2
4	34-14-02	2

EM1-0001-31-002

R R ADC Computed Airspeed and Mach Number Monitoring Schematic
SCHEM 25

EFFECTIVITY: ALL

001B



INPUT RANGE	SIGNAL CHARACTERISTICS (AIDS) PARAMETER (KNOTS × 10^2)	ACCURACY (± KNOTS)	SIG COND INPUT VDC	SIG COND DIGITS
0	1.5	4	0.83	188
1	2.0		1.24	248
2	2.5		1.86	310
3	3.0		1.86	372
4	3.5		2.17	434
5	4.0		2.48	496
6	4.5		2.79	558
7	5.0		3.10	620
8	5.5		3.41	682
9	6.0	4	3.72	744
10	-	-	-	-

SIG RECORDING SEQ	
SIG CODE	SEQ
6-1	102
6-2	100

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
6-1	131
6-2	129

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31-32-11	1
2	31-32-11	2
3	34-14-01	2
4	34-14-02	2

NOTE

1 ←4— = NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATIONS ARE PREFIXED WITH 3414 UNLESS OTHERWISE SPECIFIED

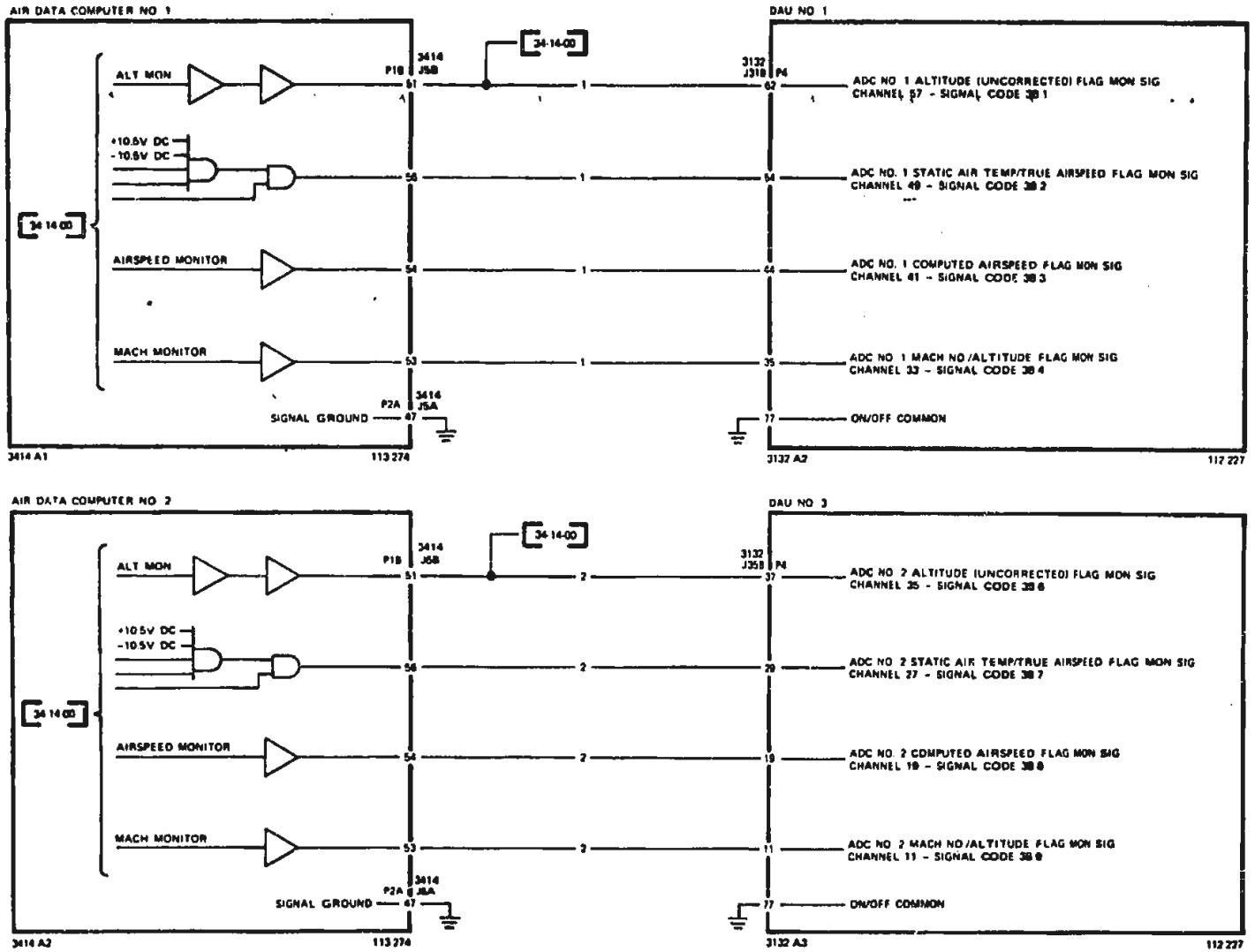
2 INPUT VDC BASED ON 28 ± 2 VDC REFERENCE

EM1-0001-31-883

R ADC True Airspeed Monitoring Schematic
R SCHEM 26

EFFECTIVITY: ALL

0018


AIR DATA COMPUTER NO 1
DAU NO 1
ALT MON
+10.5V DC
-10.5V DC
AIRSPEED MONITOR
MACH MONITOR
SIGNAL GROUND
34-14-00
3414 J6B P1B
3414 J5A P2A
3132 J31B P4
3132 J35B P1
ADC NO 1 ALTITUDE (UNCORRECTED) FLAG MON SIG CHANNEL 57 - SIGNAL CODE 38 1
ADC NO. 1 STATIC AIR TEMP/TRUE AIRSPEED FLAG MON SIG CHANNEL 49 - SIGNAL CODE 38 2
ADC NO. 1 COMPUTED AIRSPEED FLAG MON SIG CHANNEL 41 - SIGNAL CODE 38 3
ADC NO. 1 MACH NO./ALTITUDE FLAG MON SIG CHANNEL 33 - SIGNAL CODE 38 4
ON/OFF COMMON
3414 A1
113 274
3132 A2
112 227
AIR DATA COMPUTER NO 2
DAU NO 3
ADC NO 2 ALTITUDE (UNCORRECTED) FLAG MON SIG CHANNEL 35 - SIGNAL CODE 38 6
ADC NO 2 STATIC AIR TEMP/TRUE AIRSPEED FLAG MON SIG CHANNEL 27 - SIGNAL CODE 38 7
ADC NO 2 COMPUTED AIRSPEED FLAG MON SIG CHANNEL 19 - SIGNAL CODE 38 8
ADC NO 2 MACH NO/ALTITUDE FLAG MON SIG CHANNEL 11 - SIGNAL CODE 38 9
ON/OFF COMMON
3414 A2
113 274
3132 A3
112 227

SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER	SIG COND	
		INPUT VDC	DIGITS
0	FAIL	≤ 3	0
10	NOT FAIL	≥ 7	1

SIG RECORDING SEQ	
SIG CODE	SEQ
38 1	125 1
38 2	125 2
38 3	125 3
38 4	125 4
38 6	95 4
38 7	95 5
38 8	95 6
38 9	95 7

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
38 1	154
38 2	154
38 3	154
38 4	154
38 6	124
38 7	124
38 8	124
38 9	124

CODE	WIRING DIA	SH
1	31-32-11	1
2	31-32-11	2

NOTE

1 [22 10 00] * CROSS REF. TO SCHEM IN DIFFERENT ATA NO.

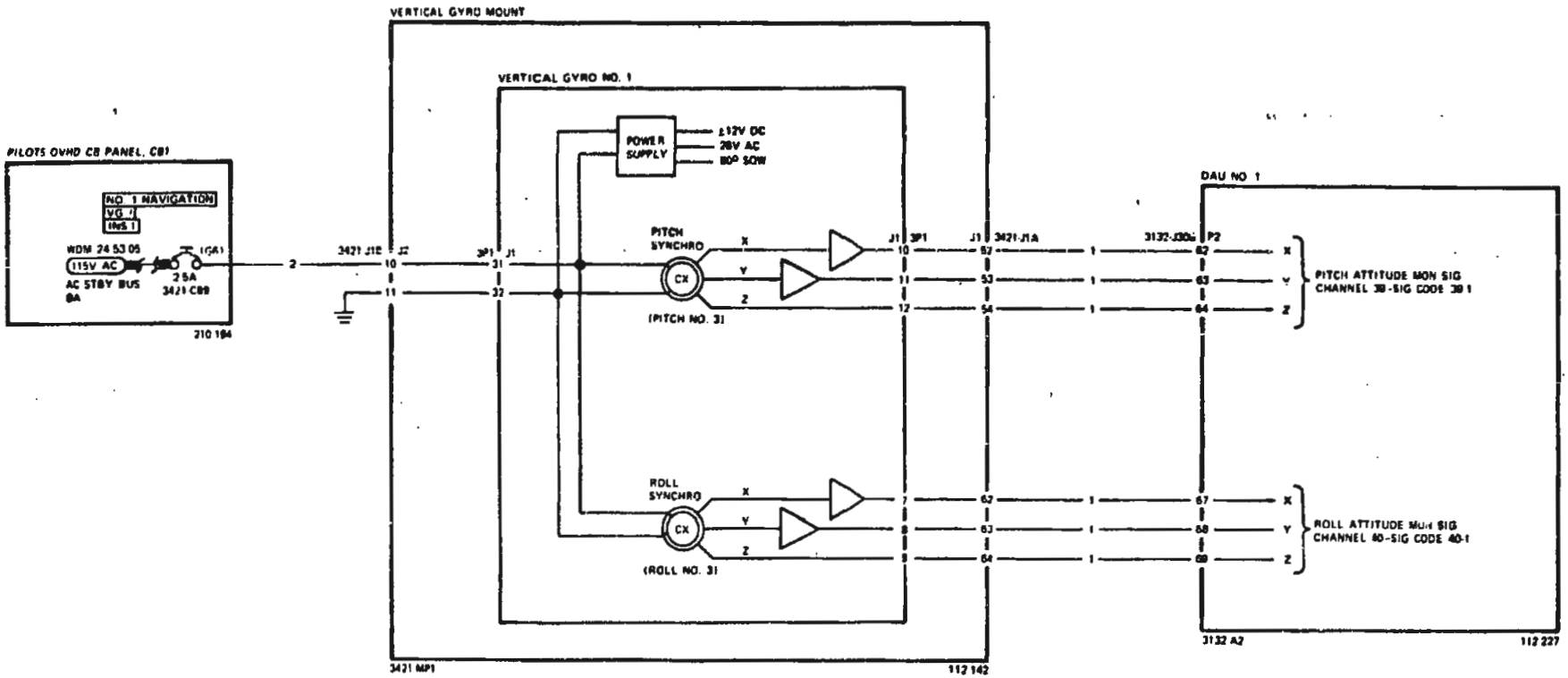
2 ⊢— 4 —⊣ * NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

EM1-0001-31-074

R ADC Altitude, SAT/TAS, Airspeed, and Mach Number
R Monitoring Schematic
R SCHEM 27

EFFECTIVITY: ALL

0018



PITCH ATTITUDE SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (DEG)	INPUT (SYNCHRO DEG)	DIGITS
0	-85	275	764
1	-68	292	811
2	-51	309	858
3	-34	326	906
4	-17	343	953
5	0	000	000
6	+17	017	047
7	+34	034	094
8	+51	051	142
9	+68	068	189
10	+85	085	236

ROLL ATTITUDE SIGNAL CHARACTERISTICS (AIDS)			
		SIG COND	
INPUT RANGE	PARAMETER (DEG)	INPUT (SYNCHRO DEG)	DIGITS
0	-180	180	500
1	-144	216	600
2	-108	252	700
3	-072	288	800
4	-036	324	900
5	000	000	000
6	+036	036	100
7	+072	072	200
8	+108	108	300
9	+144	144	400
10	+180	180	500

SIG RECORDING SEQ	
SIG CODE	SEQ
39-1	112
40-1	113

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
39-1	141
40-1	142

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31-32-11	1
2	34-21-01	2

NOTE

1 ⟵ 4 ⟶ • NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 GYRO SUPPLEMENTARY DATA
a. RANGE - 360° CONTINUOUS
b. ROTATION REF. - POSITIVE FOR CLIMB AND RIGHT BANK
c. THIRTY MILLIVOLTS MAXIMUM NULL VOLTAGE

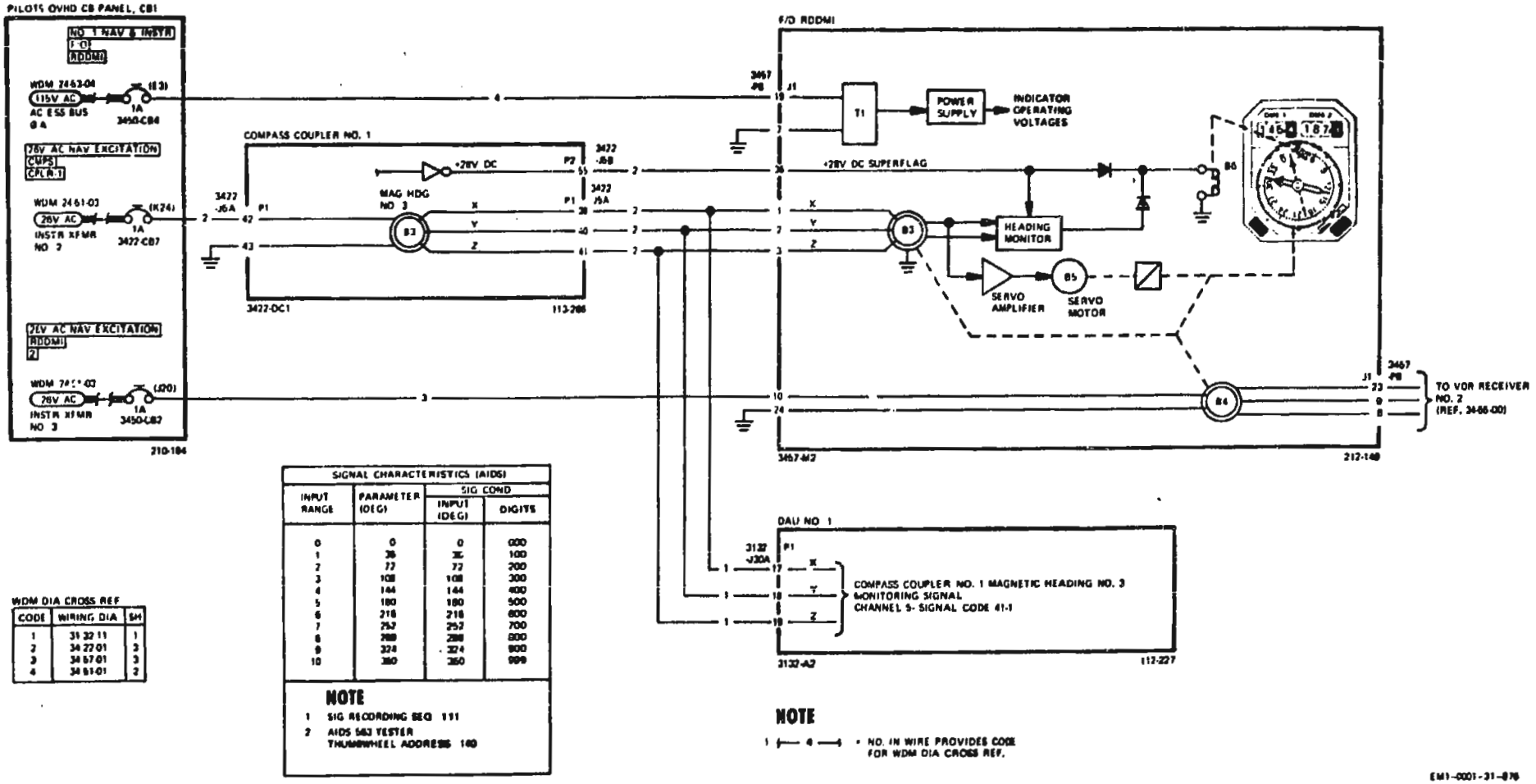
EM1-0001-31-075

R
R
R

Vertical Gyro No. 1 Pitch and Roll Attitude Monitoring Schematic
SCHEM 28

EFFECTIVITY: ALL

0018



WDM DIA CROSS REF

CODE	WIRING DIA	SH
1	31 32 11	1
2	34 22 01	3
3	34 67 01	3
4	34 61 01	2

SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (DEG)	SIG COND INPUT (DEG)	SIG COND DIGITS
0	0	0	000
1	36	36	100
2	72	72	200
3	108	108	300
4	144	144	400
5	180	180	500
6	216	216	600
7	252	252	700
8	288	288	800
9	324	324	900
10	360	360	999

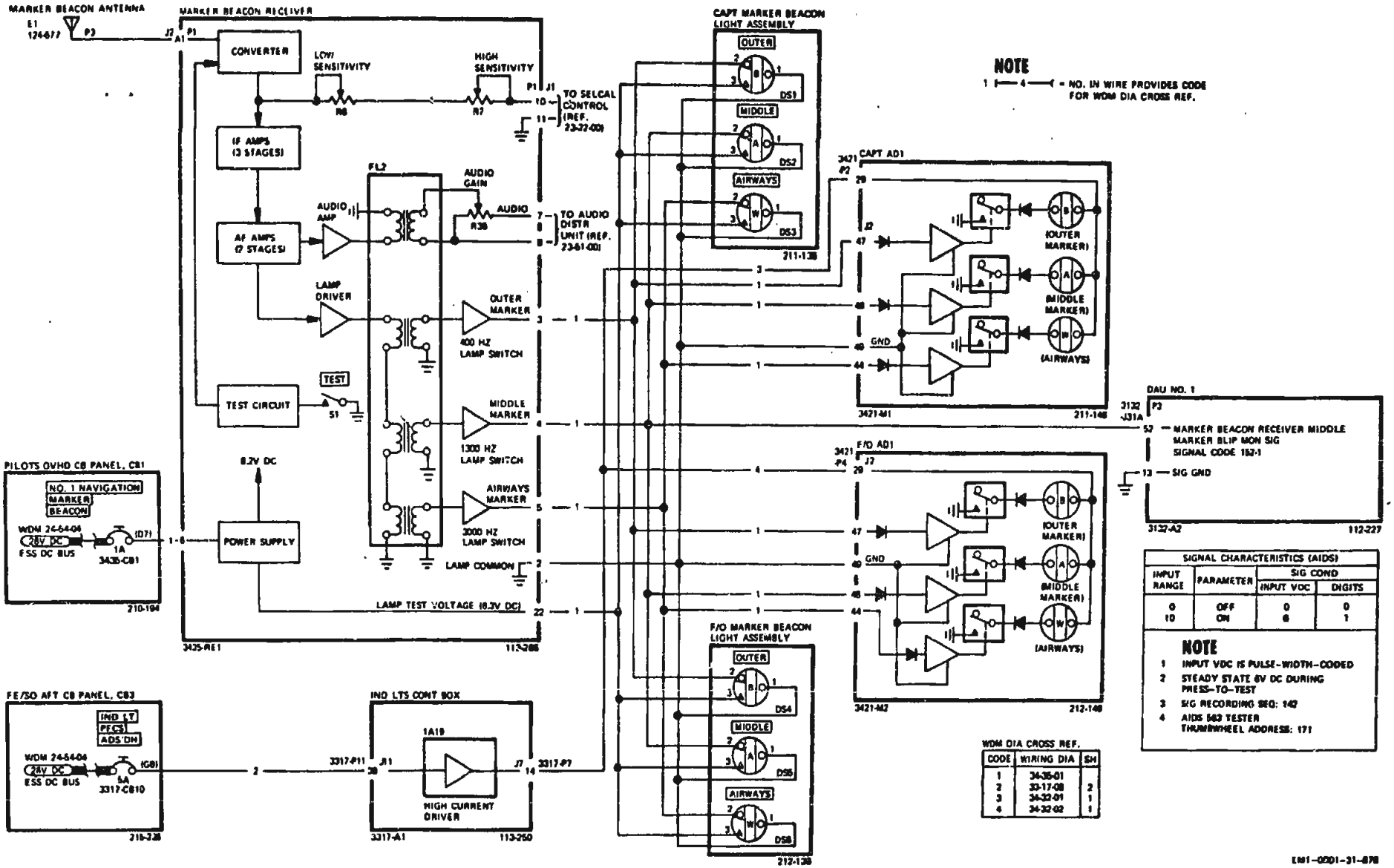
NOTE
1 SIG RECORDING SEQ 111
2 AIDS 563 TESTER THUMBWHEEL ADDRESS 140

NOTE
1 ⟵ 4 ⟶ * NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

R Compass Coupler No. 1 Directional Heading
R Monitoring Schematic
R SCHEM 29

EFFECTIVITY: ALL

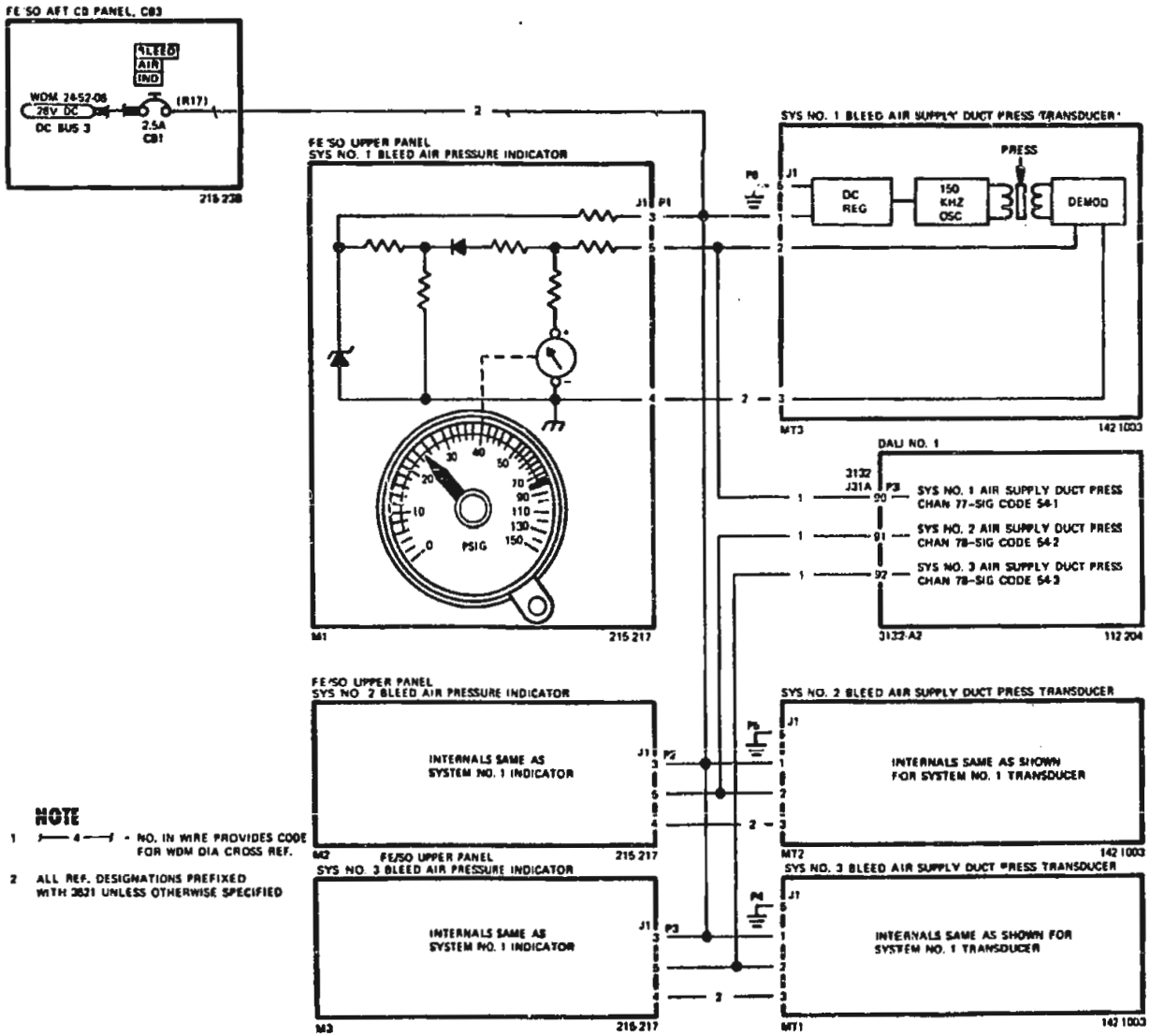
0018



R Marker Beacon Receiver No. 1 Middle
R Marker Monitoring Schematic
R SCHEM 30

EFFECTIVITY: ALL

001B



NOTE

1 ⟵4⟶ - NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATIONS PREFIXED WITH 3631 UNLESS OTHERWISE SPECIFIED

SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (PSIG)	SIG COND INPUT VDC	SIG COND DIGITS
0	0	0.00	000
1	15	0.367	073
2	30	0.733	147
3	45	1.100	220
4	60	1.467	293
5	75	1.834	367
6	90	2.200	440
7	105	2.567	513
8	120	2.934	587
9	135	3.300	660
10	150	3.667	733

SIG RECORDING SEQ	
SIG CODE NO.	SEQ
54-1	153
54-2	154
54-3	155

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
54-1	182
54-2	183
54-3	184

WDM DIA CROSS REF.

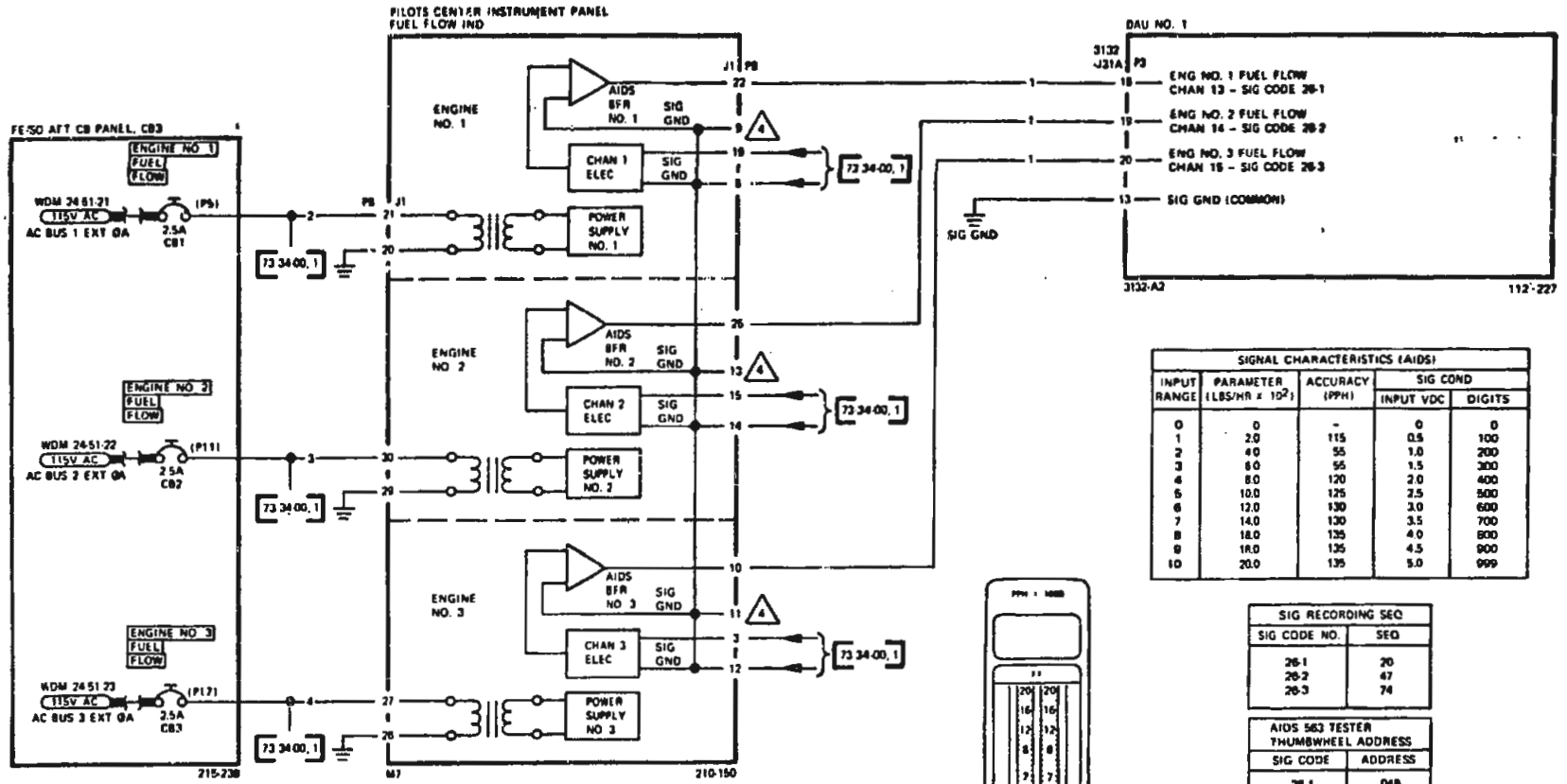
CODE	WIRING DIA	SH
1	31-32-02	1
2	28-21-01	

EM1-0001-31-820

R System Bleed Air Pressure Monitoring Schematic
R SCHEM 31

EFFECTIVITY: ALL

0018



SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (LBS/HR x 10^2)	ACCURACY (PPH)	SIG COND	
			INPUT VDC	DIGITS
0	0	-	0	0
1	2.0	115	0.5	100
2	4.0	55	1.0	200
3	8.0	55	1.5	300
4	8.0	120	2.0	400
5	10.0	125	2.5	500
6	12.0	130	3.0	600
7	14.0	130	3.5	700
8	16.0	135	4.0	800
9	18.0	135	4.5	900
10	20.0	135	5.0	999

SIG RECORDING SEQ	
SIG CODE NO.	SEQ
26-1	20
26-2	47
26-3	74

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
26-1	048
26-2	076
26-3	103

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31 32 12	2
2	73 34 01	
3	73 34 02	
4	73 34 03	

NOTE

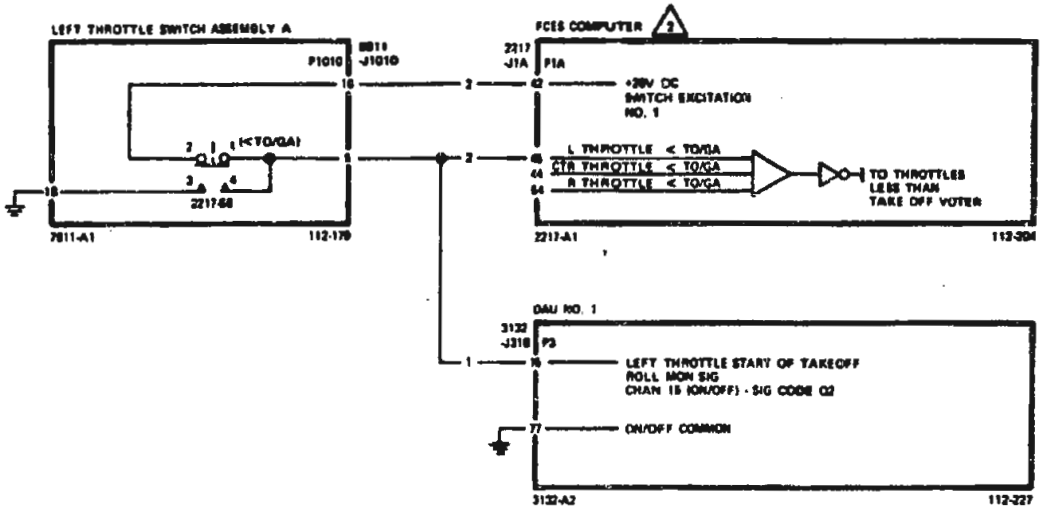
1. [22 10 00, 1] - CROSS REF. TO SCHEM IN DIFFERENT ATA NO
2. —4— - NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.
3. ALL REF. DESIGNATIONS PRECEDED BY 7334 UNLESS OTHERWISE SPECIFIED
4. NO EXTERNAL CONNECTION

EM1-0002-31-810

R Engine Fuel Flow Monitoring Schematic
R SCHEM 32

EFFECTIVITY: ALL

0018



SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (THROTTLE POS)	SIG COND	
		INPUT VDC	DIGITS
0	Q2: NOT TAKEOFF (<70%)	≥ 7	1
10	Q2-1: TAKEOFF ROLL (≥70%)	≤ 3	0

SIG RECORDING SEQ	
SIG CODE	SEQ
Q2	266-7

AIDS 663 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
Q2	284

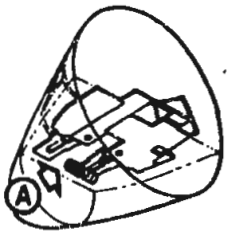
WDM DIA CROSS REF.		
CODE	WIRING DIA	SH
1	31-32-13	1
2	22-17-01	1

NOTE

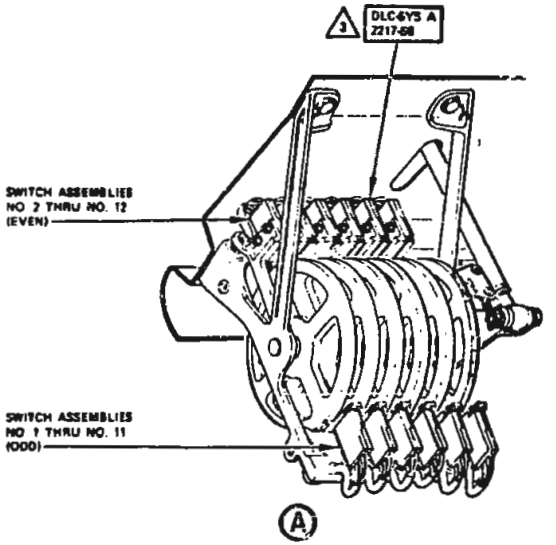
1 ⟵ 4 ⟵ = NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 REF. MM 22-17-00 FOR ADDITIONAL FCES COMPUTER INTERNAL CIRCUITRY

3 PLACARD INSTALLED ON THROTTLE SWITCH IDENTIFICATION PLATE SWITCH 2217-68 IS PHYSICALLY INSTALLED IN POSITION NO. 10



LEFT THROTTLE SWITCH ASSEMBLY A



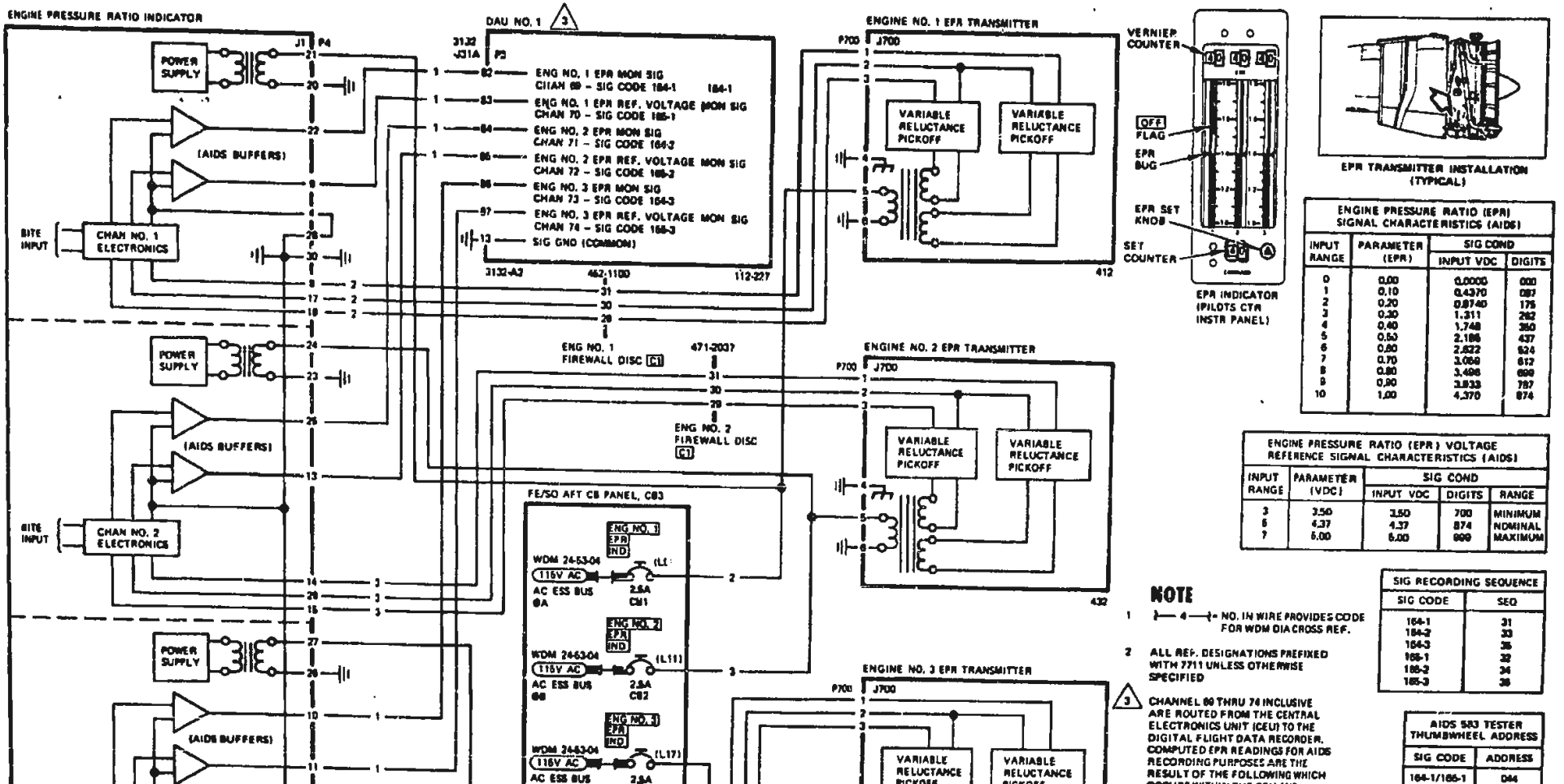
LEFT THROTTLE SWITCH ASSEMBLY A (TYPICAL)

EM1-0001-31-000

R Left Throttle Switch Position - Start of Takeoff
R Roll Monitoring Schematic
R SCHEM 33

EFFECTIVITY: ALL

001B



EPR TRANSMITTER INSTALLATION (TYPICAL)

ENGINE PRESSURE RATIO (EPR) SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (EPR)	SIG COND INPUT VDC	SIG COND DIGITS
0	0.00	0.0000	000
1	0.10	0.4370	087
2	0.20	0.8740	175
3	0.30	1.311	262
4	0.40	1.748	350
5	0.50	2.186	437
6	0.60	2.622	524
7	0.70	3.060	612
8	0.80	3.496	699
9	0.90	3.933	787
10	1.00	4.370	874

ENGINE PRESSURE RATIO (EPR) VOLTAGE REFERENCE SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (VDC)	SIG COND INPUT VDC	SIG COND DIGITS	SIG COND RANGE
3	3.50	3.50	700	MINIMUM
6	4.37	4.37	874	NOMINAL
7	5.00	5.00	999	MAXIMUM

NOTE

1 ⊢— 4 —⊣ = NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATIONS PREFIXED WITH 7711 UNLESS OTHERWISE SPECIFIED

3 CHANNEL 69 THRU 74 INCLUSIVE ARE ROUTED FROM THE CENTRAL ELECTRONICS UNIT (CEU) TO THE DIGITAL FLIGHT DATA RECORDER. COMPUTED EPR READINGS FOR AIDS RECORDING PURPOSES ARE THE RESULT OF THE FOLLOWING WHICH OCCURS WITHIN THE CEU AND ROUTED TO THE INCREMENTAL RECORDER:

CHAN 69 / CHAN 70 = ENG NO. 1 COMPUTED EPR (SIG NO. P20-1)
CHAN 71 / CHAN 72 = ENG NO. 2 COMPUTED EPR (SIG NO. P20-2)
CHAN 73 / CHAN 74 = ENG NO. 3 COMPUTED EPR (SIG NO. P20-3)

SIG RECORDING SEQUENCE

SIG CODE	SEQ
164-1	31
164-2	33
164-3	35
165-1	32
165-2	34
165-3	36

AIDS 583 TESTER THUMBWHEEL ADDRESS

SIG CODE	ADDRESS
164-1/165-1	044
164-2/165-2	071
164-3/165-3	099

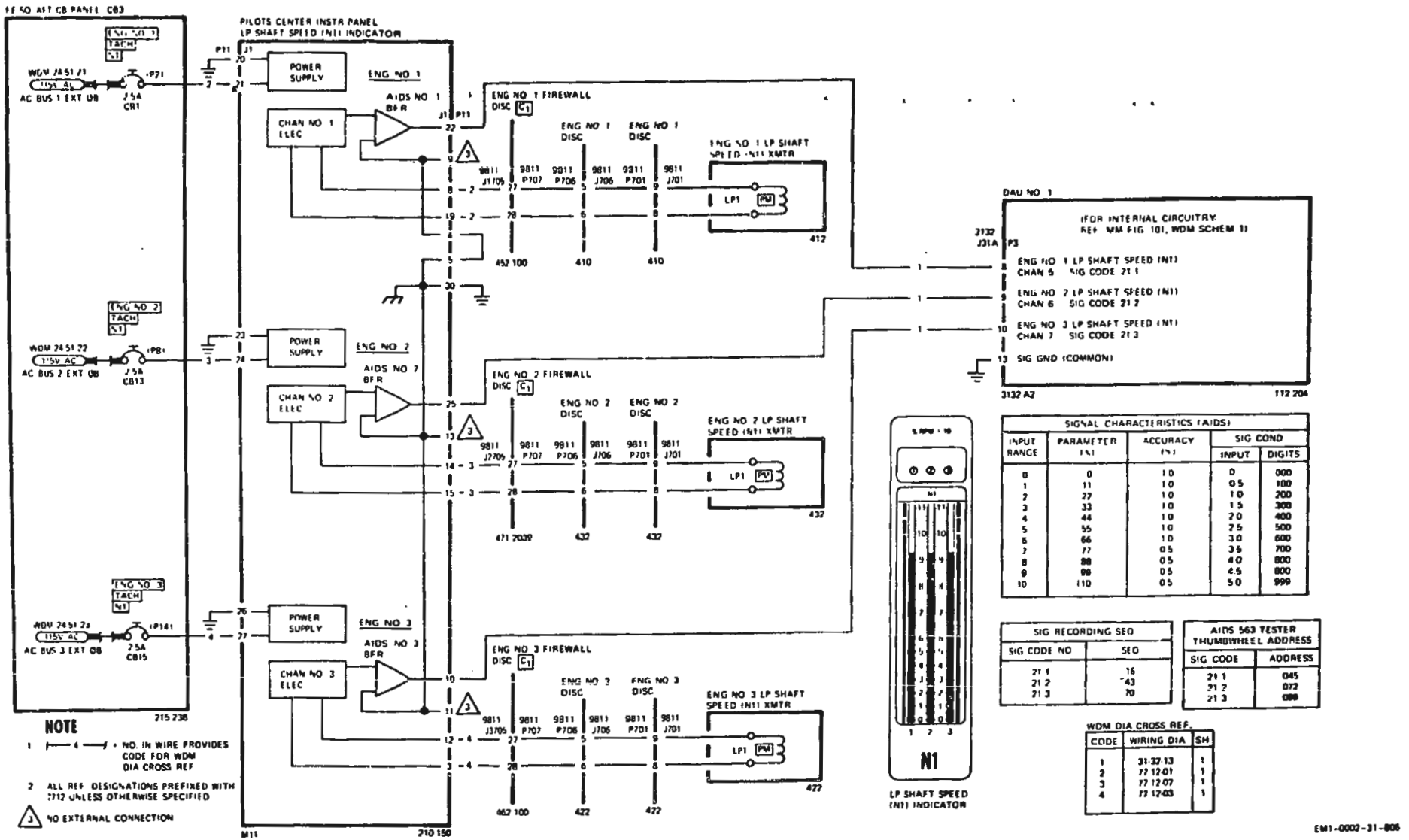
WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31-32-13	1
2	77-11-01	
3	77-11-02	
4	77-11-03	

EM1-0001-31-000

R Engine Pressure Ratio Monitoring Schematic
R SCHEM 34

EFFECTIVITY: ALL


PILOTS CENTER INSTR PANEL
LP SHAFT SPEED (N1) INDICATOR
POWER SUPPLY
ENG NO 1
ENG NO 2
ENG NO 3
CHAN NO 1 ELEC
CHAN NO 2 ELEC
CHAN NO 3 ELEC
AIDS NO 1 BFR
AIDS NO 2 BFR
AIDS NO 3 BFR
ENG NO 1 FIREWALL DISC
ENG NO 2 FIREWALL DISC
ENG NO 3 FIREWALL DISC
ENG NO 1 LP SHAFT SPEED (N1) XMTR
ENG NO 2 LP SHAFT SPEED (N1) XMTR
ENG NO 3 LP SHAFT SPEED (N1) XMTR
LP1
PWI
AC BUS 1 EXT PWR
AC BUS 2 EXT PWR
AC BUS 3 EXT PWR
7.5A CB11
7.5A CB13
7.5A CB15
DAU NO 1
(FOR INTERNAL CIRCUITRY REF WM FIG 101, WDM SCHEM 1)
ENG NO 1 LP SHAFT SPEED (N1) CHAN 5 SIG CODE 211
ENG NO 2 LP SHAFT SPEED (N1) CHAN 6 SIG CODE 212
ENG NO 3 LP SHAFT SPEED (N1) CHAN 7 SIG CODE 213
SIG GND (COMMON)
3132 A2
112 204
N1
LP SHAFT SPEED (N1) INDICATOR
NOTE
1 NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF
2 ALL REF DESIGNATIONS PREFIXED WITH 7712 UNLESS OTHERWISE SPECIFIED
3 NO EXTERNAL CONNECTION
215 238
210 150
EM1-0002-31-806

SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (%)	ACCURACY (%)	SIG COND	
			INPUT	DIGITS
0	0	1.0	0	000
1	11	1.0	0.5	100
2	22	1.0	1.0	200
3	33	1.0	1.5	300
4	44	1.0	2.0	400
5	55	1.0	2.5	500
6	66	1.0	3.0	600
7	77	0.5	3.5	700
8	88	0.5	4.0	800
9	99	0.5	4.5	800
10	110	0.5	5.0	999

SIG RECORDING SEQ	
SIG CODE NO	SEQ
211	16
212	43
213	70

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
211	045
212	072
213	099

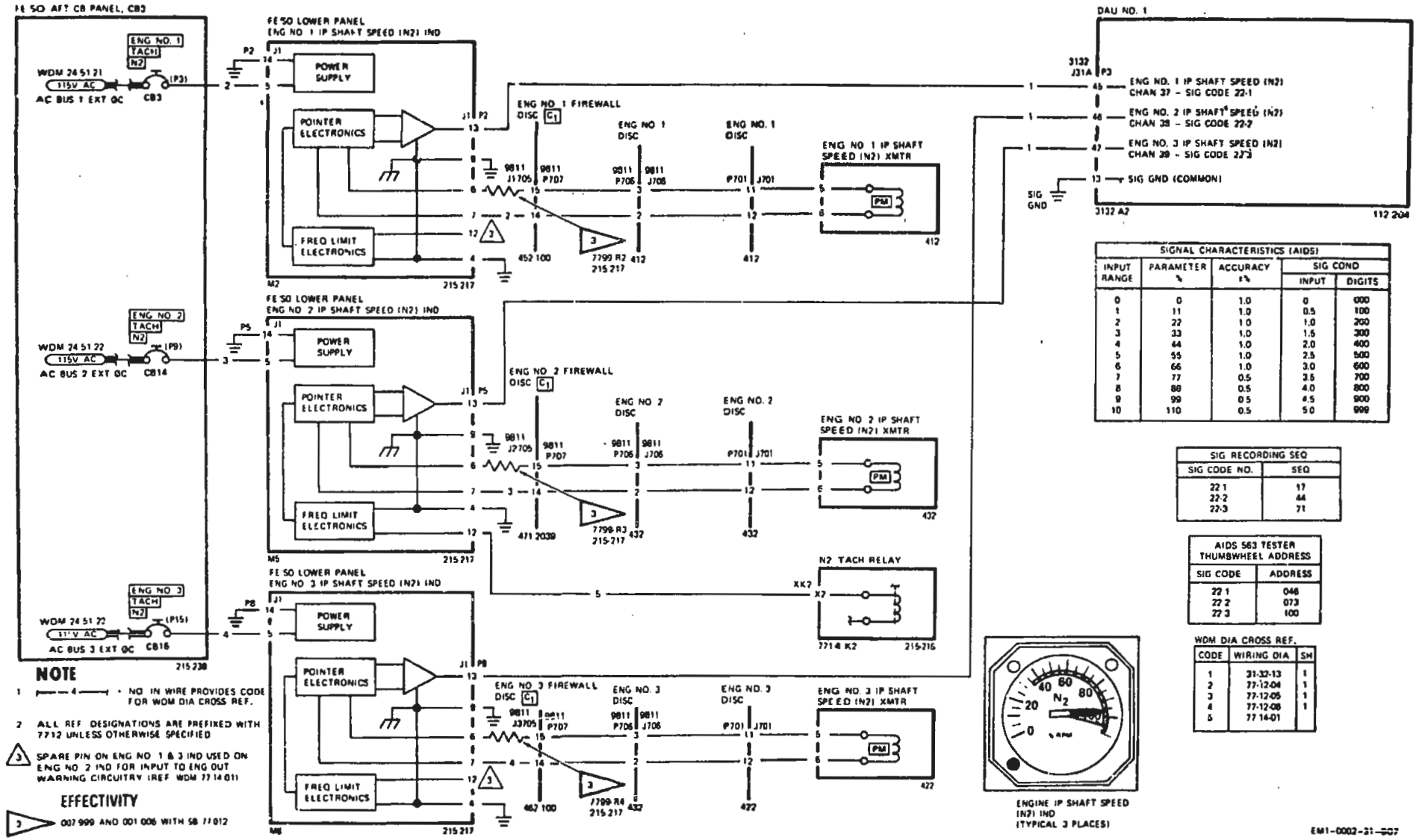
WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31-32-13	1
2	77-12-01	1
3	77-12-07	1
4	77-12-03	1

R Engine LP Shaft Speed (N1) Monitoring Schematic
R SCHEM 35

EFFECTIVITY: ALL

001B


FE SO AFT CB PANEL, CB3
ENG NO. 1 TACH N2
WDM 24 51 21
115V AC
AC BUS 1 EXT GC
CB3
ENG NO. 2 TACH N2
WDM 24 51 22
115V AC
AC BUS 2 EXT GC
CB14
ENG NO. 3 TACH N2
WDM 24 51 22
115V AC
AC BUS 3 EXT GC
CB16
215 238
FE SO LOWER PANEL
ENG NO 1 IP SHAFT SPEED (N2) IND
FE SO LOWER PANEL
ENG NO 2 IP SHAFT SPEED (N2) IND
FE SO LOWER PANEL
ENG NO 3 IP SHAFT SPEED (N2) IND
POWER SUPPLY
POINTER ELECTRONICS
FREQ LIMIT ELECTRONICS
215 217
ENG NO 1 FIREWALL DISC C1
ENG NO 2 FIREWALL DISC C1
ENG NO 3 FIREWALL DISC C1
ENG NO 1 DISC
ENG NO 2 DISC
ENG NO 3 DISC
ENG NO. 1 DISC
ENG NO. 2 DISC
ENG NO. 3 DISC
ENG NO 1 IP SHAFT SPEED (N2) XMTR
ENG NO 2 IP SHAFT SPEED (N2) XMTR
ENG NO 3 IP SHAFT SPEED (N2) XMTR
PM
412
432
422
N2 TACH RELAY
XK2
7214 K2
215-216
DAU NO. 1
3132 J31A P3
ENG NO. 1 IP SHAFT SPEED (N2) CHAN 37 - SIG CODE 22-1
ENG NO. 2 IP SHAFT SPEED (N2) CHAN 38 - SIG CODE 22-2
ENG NO. 3 IP SHAFT SPEED (N2) CHAN 39 - SIG CODE 22-3
SIG GND (COMMON)
SIG GND
3132 A2
112 204
NOTE
1 — 4 — NO IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.
2 ALL REF DESIGNATIONS ARE PREFIXED WITH 7712 UNLESS OTHERWISE SPECIFIED
3 SPARE PIN ON ENG NO 1 & 3 IND USED ON ENG NO 2 IND FOR INPUT TO ENG OUT WARNING CIRCUITRY (REF WDM 77 14 01)
EFFECTIVITY
3 007 999 AND 001 006 WITH SB 77 012
ENGINE IP SHAFT SPEED (N2) IND (TYPICAL 3 PLACES)
EM1-0002-31-007

SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER %	ACCURACY ±%	SIG COND INPUT	SIG COND DIGITS
0	0	1.0	0	000
1	11	1.0	0.5	100
2	22	1.0	1.0	200
3	33	1.0	1.5	300
4	44	1.0	2.0	400
5	55	1.0	2.5	500
6	66	1.0	3.0	600
7	77	0.5	3.5	700
8	88	0.5	4.0	800
9	99	0.5	4.5	900
10	110	0.5	5.0	999

SIG RECORDING SEQ	
SIG CODE NO.	SEQ
22 1	17
22 2	44
22 3	71

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
22 1	046
22 2	073
22 3	100

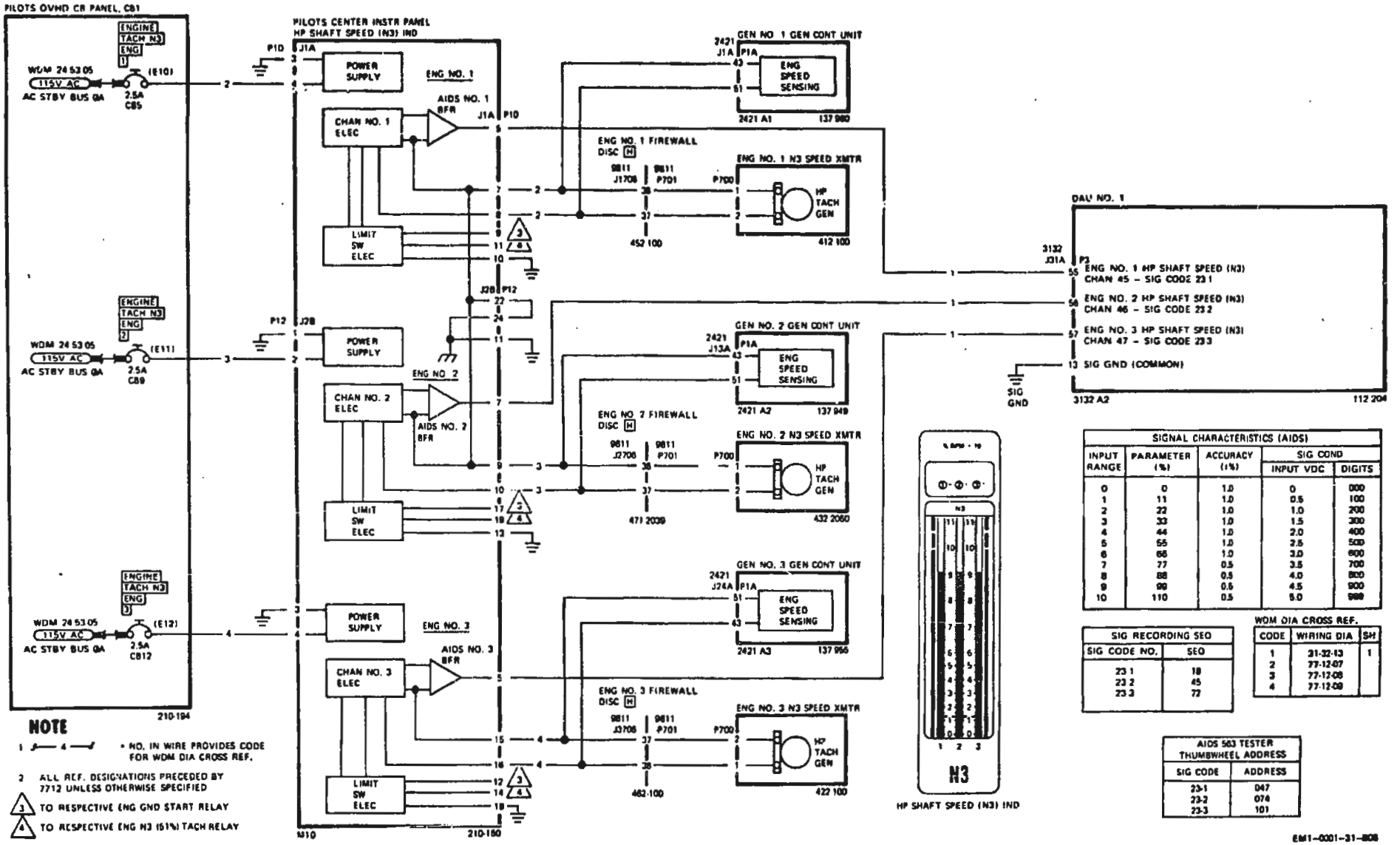
WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31-32-13	1
2	77-12-04	1
3	77-12-05	1
4	77-12-08	1
5	77 14-01	

R R Engine IP Shaft Speed (N2) Monitoring Schematic
SCHEM 36

EFFECTIVITY: ALL

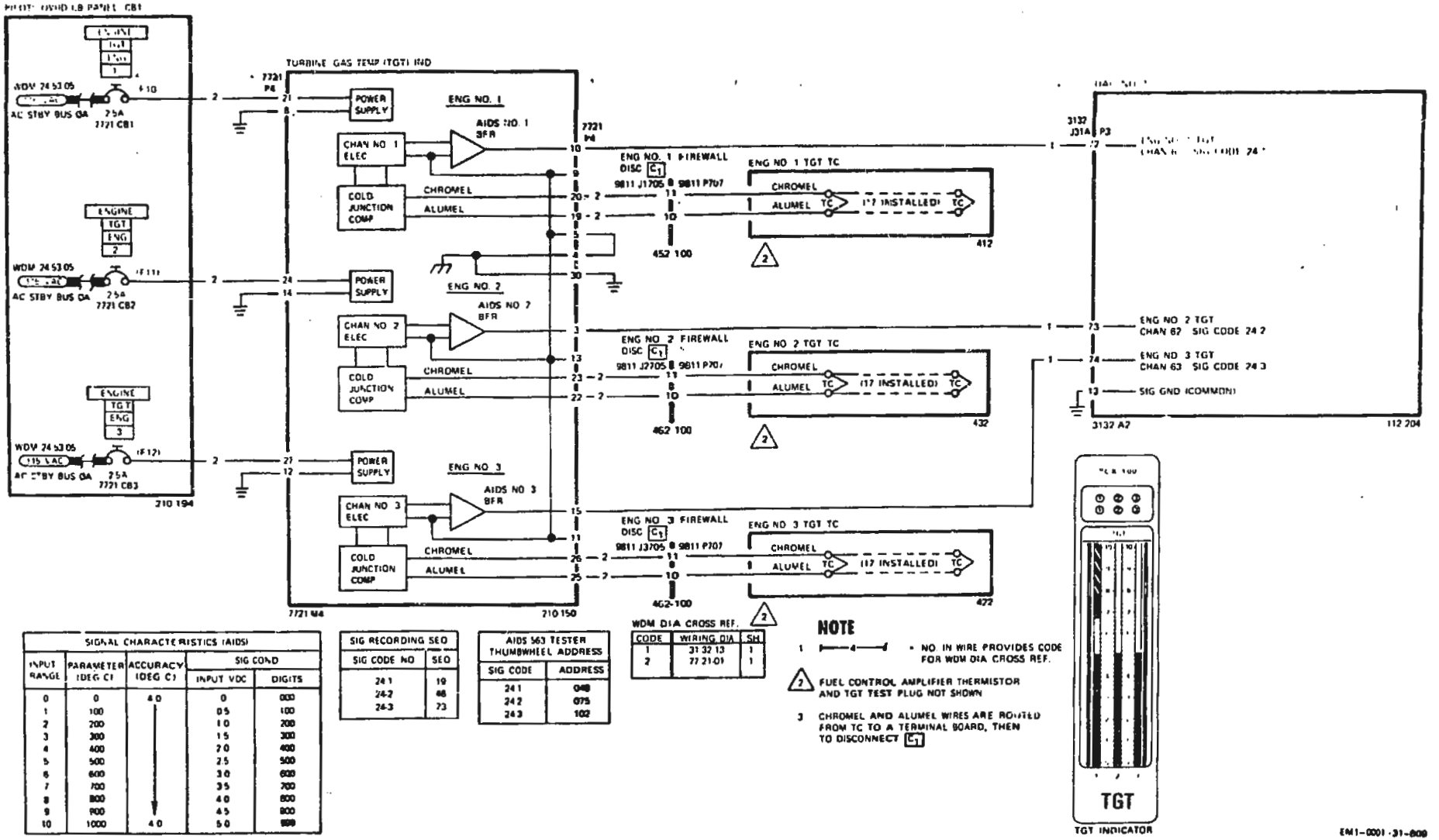
0018



R Engine HP Shaft Speed (N3) Monitoring Schematic
R SCHEM 37

EFFECTIVITY: ALL

001B


TURBINE GAS TEMP (TGT) IND
POWER SUPPLY
ENG NO. 1
ENG NO. 2
ENG NO. 3
CHAN NO 1 ELEC
CHAN NO 2 ELEC
CHAN NO 3 ELEC
COLD JUNCTION COMP
CHROMEL
ALUMEL
ENG NO 1 FIREWALL DISC C1
ENG NO 2 FIREWALL DISC C1
ENG NO 3 FIREWALL DISC C1
ENG NO 1 TGT TC
ENG NO 2 TGT TC
ENG NO 3 TGT TC
(17 INSTALLED)
ENG NO 2 TGT CHAN 62 SIG CODE 242
ENG NO 3 TGT CHAN 63 SIG CODE 243
SIG GND (COMMON)
TGT
TGT INDICATOR
NOTE
1 NO IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.
2 FUEL CONTROL AMPLIFIER THERMISTOR AND TGT TEST PLUG NOT SHOWN
3 CHROMEL AND ALUMEL WIRES ARE ROUTED FROM TC TO A TERMINAL BOARD, THEN TO DISCONNECT C1

SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (DEG C)	ACCURACY (DEG C)	SIG COND	
			INPUT VDC	DIGITS
0	0	4.0	0	000
1	100		0.5	100
2	200		1.0	200
3	300		1.5	300
4	400		2.0	400
5	500		2.5	500
6	600		3.0	600
7	700		3.5	700
8	800		4.0	800
9	900		4.5	900
10	1000	4.0	5.0	999

SIG RECORDING SEQ	
SIG CODE NO	SEQ
241	19
242	46
243	73

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
241	048
242	075
243	102

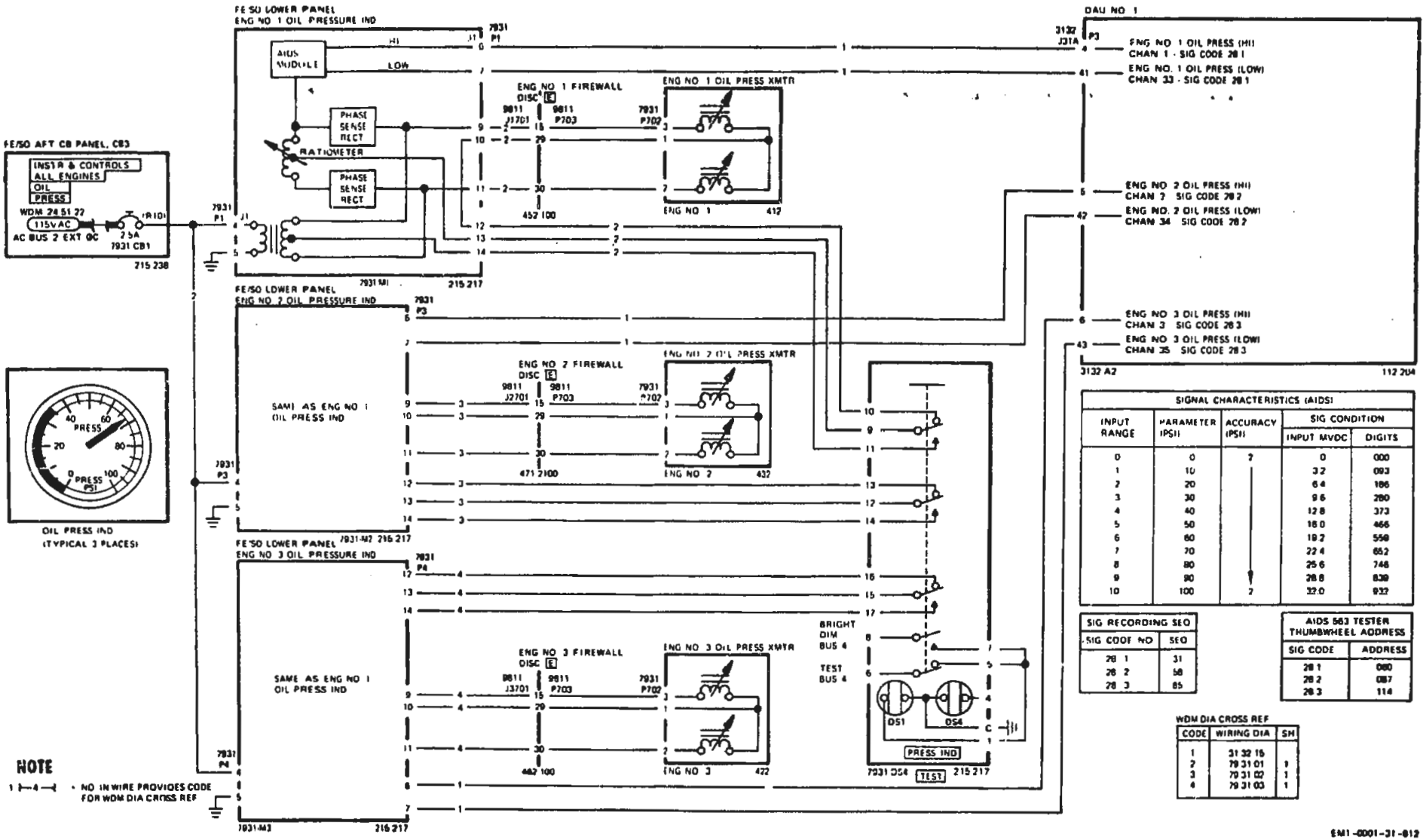
WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31 32 13	1
2	77 21-01	1

EM1-0001-31-800

R Engine Turbine Gas Temperature (TGT) Monitoring Schematic
R SCHEM 38

EFFECTIVITY: ALL


FE/SO LOWER PANEL
ENG NO 1 OIL PRESSURE IND
AIDS MODULE
HI
LOW
PHASE SENSE RECT
RATIOMETER
ENG NO 1 FIREWALL DISC E
ENG NO 1 OIL PRESS XMTR
ENG NO 1
FE/SO AFT CB PANEL, CB3
INSTR & CONTROLS
ALL ENGINES
OIL PRESS
WDM 28 51 22
115 VAC
AC BUS 2 EXT PC
2.5A
7931 CB1
715 238
7931 M1
215 217
FE/SO LOWER PANEL
ENG NO 2 OIL PRESSURE IND
SAME AS ENG NO 1 OIL PRESS IND
ENG NO 2 FIREWALL DISC E
ENG NO 2 OIL PRESS XMTR
ENG NO 2
7931-M2 216 217
FE/SO LOWER PANEL
ENG NO 3 OIL PRESSURE IND
SAME AS ENG NO 1 OIL PRESS IND
ENG NO 3 FIREWALL DISC E
ENG NO 3 OIL PRESS XMTR
ENG NO 3
7931-M3 216 217
OIL PRESS IND
(TYPICAL 3 PLACES)
BRIGHT DIM BUS 4
TEST BUS 4
DS1
DS4
PRESS IND
7931 DS4 TEST 215 217
DAU NO 1
3132 J31A P3
ENG NO 1 OIL PRESS (HI) CHAN 1 · SIG CODE 28 1
ENG NO. 1 OIL PRESS (LOW) CHAN 33 · SIG CODE 28 1
ENG NO 2 OIL PRESS (HI) CHAN 2 SIG CODE 28 2
ENG NO. 2 OIL PRESS (LOW) CHAN 34 SIG CODE 28 2
ENG NO 3 OIL PRESS (HI) CHAN 3 SIG CODE 28 3
ENG NO 3 OIL PRESS (LOW) CHAN 35 SIG CODE 28 3
3132 A2
112 204
NOTE
1 1—4 — NO IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF

SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (PSI)	ACCURACY (PSI)	SIG CONDITION	
			INPUT MVDC	DIGITS
0	0	2	0	000
1	10		32	093
2	20		64	186
3	30		96	280
4	40		128	373
5	50		160	466
6	60		192	559
7	70		224	652
8	80		256	746
9	90		288	839
10	100	2	320	932

SIG RECORDING SEQ	
SIG CODE NO	SEQ
28 1	31
28 2	58
28 3	85

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
28 1	080
28 2	087
28 3	114

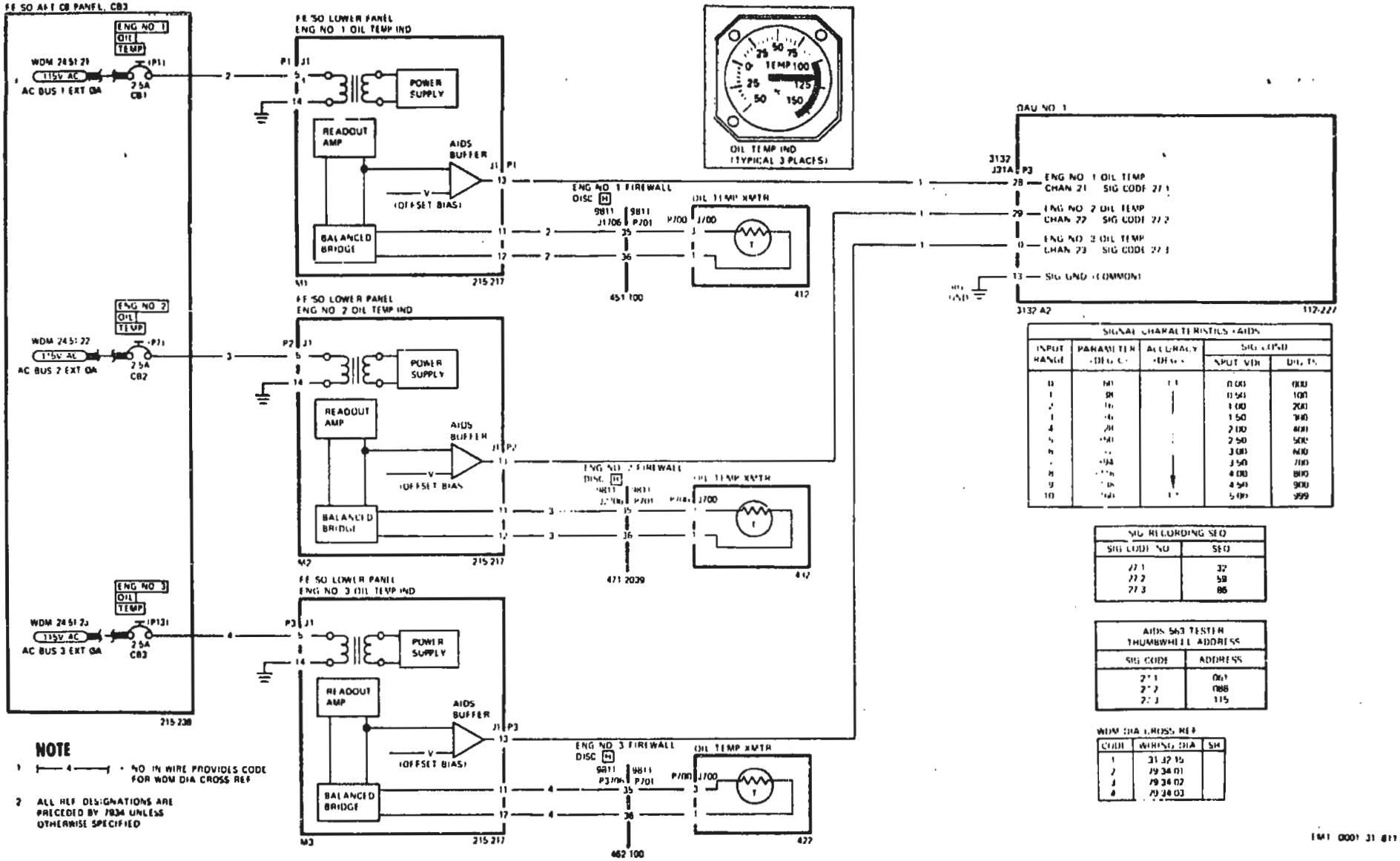
WDM DIA CROSS REF		
CODE	WIRING DIA	SH
1	31 32 15	1
2	79 31 01	1
3	79 31 02	1
4	79 31 03	1

EM1-0001-31-812

R R Engine Oil Pressure Monitoring Schematic
SCHEM 39

EFFECTIVITY: ALL

001B



NOTE

1. —4— NO IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF
2. ALL REF DESIGNATIONS ARE PRECEDED BY 7934 UNLESS OTHERWISE SPECIFIED

SIGNAL CHARACTERISTICS AIDS

INPUT RANGE	PARAMETER (DEG C)	ACCURACY (DEG C)	SIG COND	
			INPUT VDC	OUTPUT VDC
0	-50	±1	0.00	000
1	-25		0.50	100
2	0		1.00	200
3	+25		1.50	300
4	+50		2.00	400
5	+75		2.50	500
6	+100		3.00	600
7	+125		3.50	700
8	+150		4.00	800
9	+175		4.50	900
10	+200	±2	5.00	999

SIG RECORDING SEQ

SIG CODE NO	SEQ
27 1	32
27 2	58
27 3	86

AIDS 563 TESTER THUMBWHEEL ADDRESS

SIG CODE	ADDRESS
27 1	061
27 2	088
27 3	115

WDM DIA CROSS REF

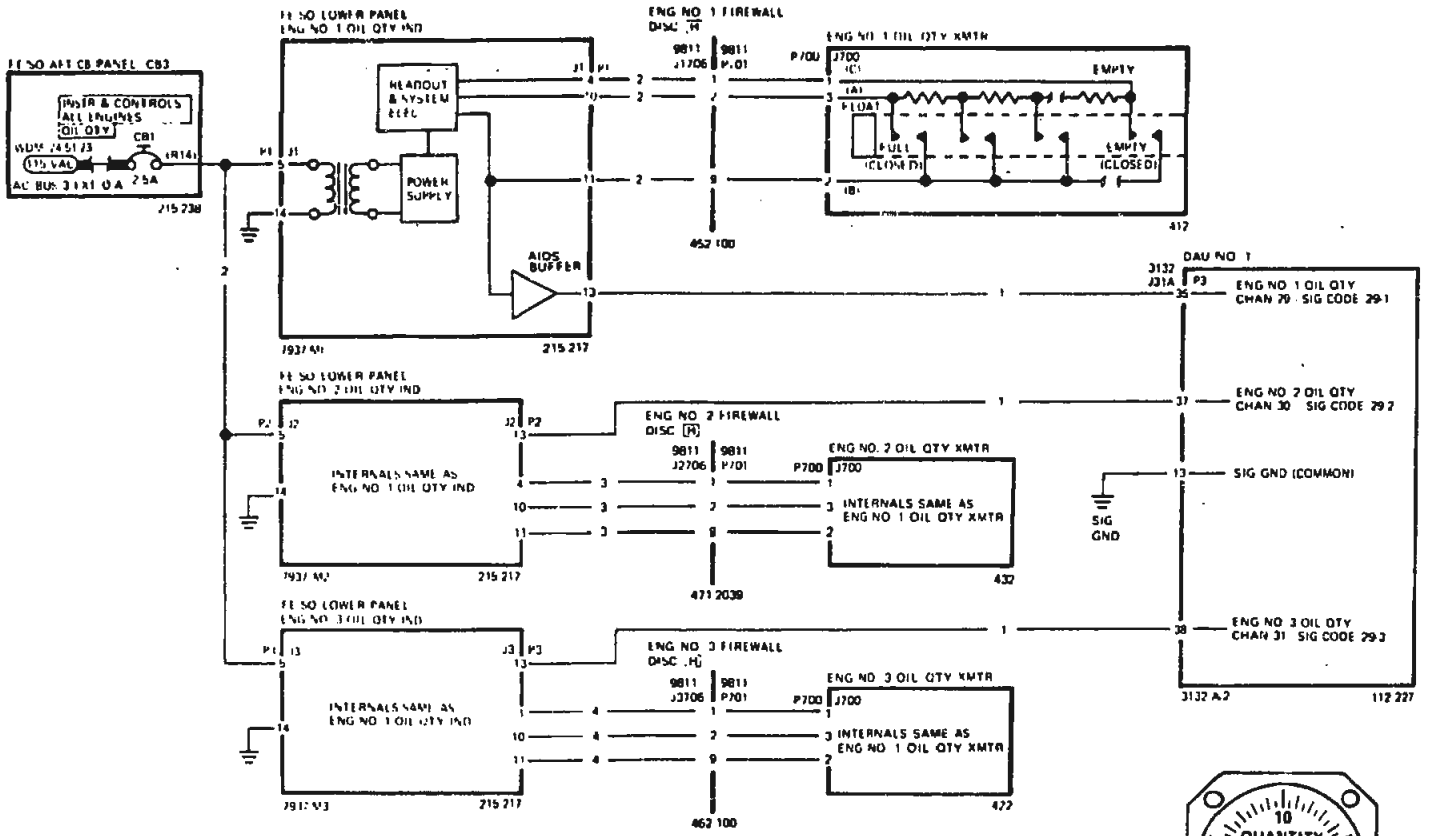
CODE	WIRING DIA	SH
1	31 32 15	
2	79 34 01	
3	79 34 02	
4	79 34 03	

EMI 0001 31 811

R Engine Oil Temperature Monitoring Schematic
R SCHEM 40

EFFECTIVITY: ALL

001B



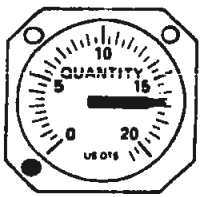
SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (QTS)	ACCURACY (QTS)	SIG COND INPUT VDC	SIG COND DIGITS
0	0.0	± 1.2 QT	0.040	008
1	2.2		0.536	107
2	4.4		1.032	207
3	6.6		1.528	306
4	8.8		2.024	405
5	11.0		2.520	504
6	13.2		3.016	603
7	15.4		3.512	702
8	17.6		4.008	802
9	19.8		4.504	901
10	22.0	± 1.2 QT	5.000	999

SIG RECORDING SEQ	
SIG CODE NO.	SEQ
29-1	33
29-2	69
29-3	87

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
29-1	062
29-2	089
29-3	116

WDM DIA CROSS REF

CODE	WIRING DIA	SH
1	31 32 15	
2	79 37 01	
3	79 37 02	
4	79 37 03	



OIL QTY IND (TYPICAL)

NOTE

1 —— 4 —— NO IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF

2 ALL REF DESIGNATIONS PREFIXED WITH 7937 UNLESS OTHERWISE SPECIFIED

EM1 0001 31 813

R Engine Oil Quantity Monitoring Schematic
R SCHEM 41

R EFFECTIVITY: ALL
R
001B

DATA ACQUISITION UNIT NO. 2 - FAULT ISOLATION

1. General

Reference data and fault isolation procedures for troubleshooting system faults are included in this section of the manual. A system malfunction detected by the flight crew is normally entered in the aircraft flight log book and reported to maintenance personnel by a FIRM fault code number. This number and the flight log book write-up can be found in the Chapter 31 Fault Code Index. The index specifies the maintenance manual section, fault isolation diagram figure number and, where appropriate, a block number indicating the diagram entry point containing the fault isolation procedure. When no block number is specified, the diagram entry point is block 1.

Prerequisites listed at the top of each diagram identify mandatory preliminary steps and circuit breakers that must be closed before initiating any fault isolation step.

Schematic diagrams, identified by a SCHEM number, supplement fault isolation procedures as maintenance aids. The schematics show the basic system circuitry necessary for troubleshooting and include cross-reference indexes to the wiring diagram manual pages required for checking component interconnect wiring.

R 2. Fault Isolation/Identification

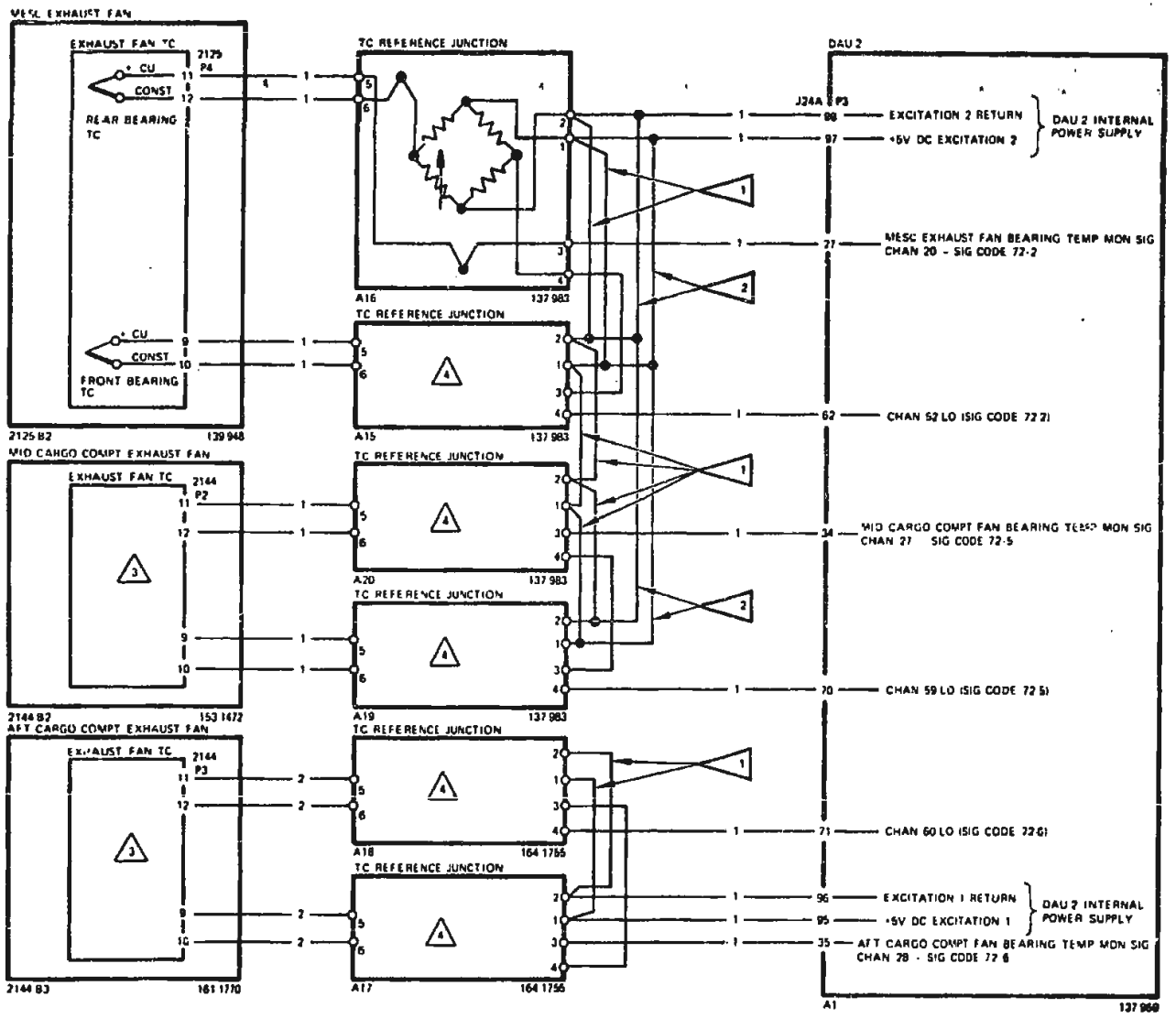
Schematics contained in this section are designed to provide the technician with troubleshooting documents that contain adequate information for isolating and confirming a suspected fault in any of the signals routed to data acquisition unit (DAU) No. 2. In the event a schematic in this section contains a group of signals, part of which are routed to DAU No. 1 or DAU No. 3, the affected schematic is also included in the appropriate Section 31-32-10 (DAU No. 1) or 31-32-12 (DAU No. 3).

Technicians involved with troubleshooting the AIDS system should be familiar with the information in Section 31-32-00 Aircraft Integrated Data System - Fault Isolation. This section includes information on the use of the Model 563 AIDS/DFDR Portable Tester and the tabulated signal data included on each schematic.

Table 101 lists the fault isolation diagrams and schematics in this section.

TABLE 101

FIGURE	TITLE
SCHEM 1	MESC, Mid and Aft Cargo Compt Exhaust Fan Boarding Temp Monitoring Schematic
SCHEM 2	Hydraulic Pumps Case Drain Temp Monitoring Schematic
SCHEM 3	Hydraulic Pumps QFM Monitoring Schematic
SCHEM 4	Direct Lift Control and Nose Gear Steering Servo Valve Return QFM Monitoring Schematic
SCHEM 5	Left Inboard and Outboard Aileron QFM Monitoring Schematic
SCHEM 6	Right Inboard and Outboard Aileron QFM Monitoring Schematic
SCHEM 7	Left Spoilers QFM Monitoring Schematic
SCHEM 8	Right Spoiler QFM Monitoring Schematic
SCHEM 9	Stabilizer and Rudder QFM Monitoring Schematic
SCHEM 10	Cabin Altitude Absolute Pressure Monitoring Schematic
SCHEM 11	Normal and Alternate Brake Metered Hydraulic Pressure Monitoring Schematic
SCHEM 12	Landing Gear In-Transit Time and Approach - All Landing Gears Position Monitoring Schematic
SCHEM 13	Engine Splitter Temperature Monitoring Schematic
SCHEM 14	Engine Throttle Lever Angle Position Monitoring Schematic
SCHEM 15	Engine Fuel Differential Pressure and LP. IP. and HP Compressor Delivery Pressure Monitoring Schematic
SCHEM 16	Engine IP and HP Compressor Delivery Temperature Monitoring Schematic
SCHEM 17	Engine IP Turbine Front and Rear Cooling Air Temperature Monitoring Schematic
SCHEM 18	Engine Vibration Monitoring Schematic



SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (DEG F AVG)	SIG COND	
		INPUT MVDC	DIGITS
0	32	0.000	000
1	80	2.114	087
2	120	3.974	118
3	160	5.918	172
4	200	7.934	231
5	240	10.028	292
6	280	12.188	355
7	320	14.418	420
8	360	16.704	486
9	400	19.050	554
10	440	21.452	624

SIG RECORDING SEQ	
SIG CODE	SEQ
72 2	182
72 5	185
72 6	186

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
72 2	211
72 5	214
72 6	215

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31 32 02	2
2	31 32 02	3

NOTE

1 ⟵4⟶ = NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATIONS PREFIXED WITH 3132 UNLESS OTHERWISE SPECIFIED

3 INTERNAL CIRCUITRY IDENTICAL TO THAT SHOWN FOR MESC EXHAUST FAN THERMOCOUPLE

4 INTERNAL CIRCUITRY IDENTICAL TO THAT SHOWN FOR THERMOCOUPLE REFERENCE JUNCTION A16

EFFECTIVITY

1 001-028 WITHOUT SB 31-040

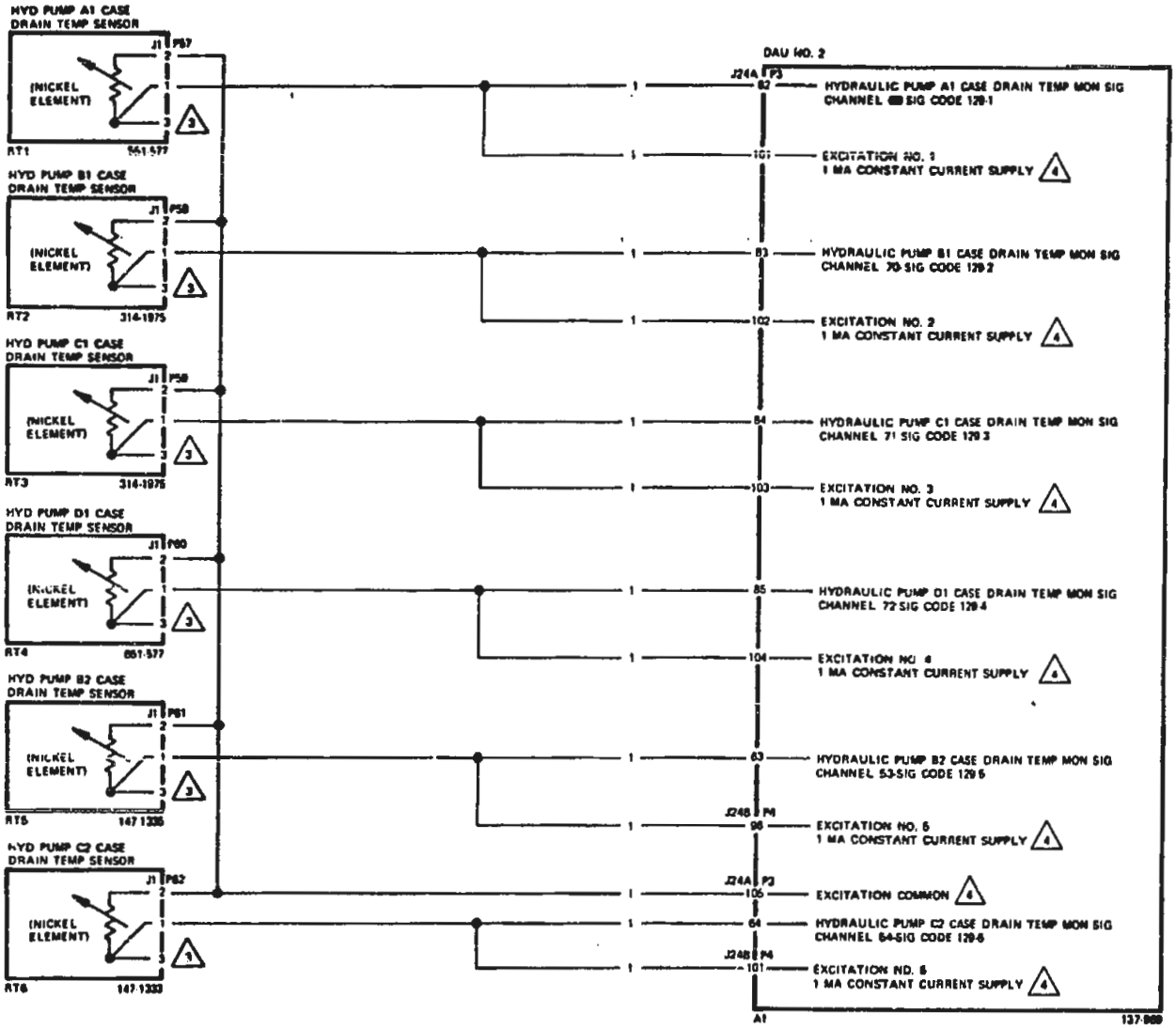
2 001-028 WITH SB 31-040 AND 029-999

EM1-0004-31-842

R MESC, Mid, and Aft Cargo Compt Exhaust Fan Bearing
R Temp Monitoring Schematic
R SCHEM 1

EFFECTIVITY: ALL

001B


HYD PUMP A1 CASE DRAIN TEMP SENSOR
(NICKEL ELEMENT)
RT1
HYD PUMP B1 CASE DRAIN TEMP SENSOR
(NICKEL ELEMENT)
RT2
HYD PUMP C1 CASE DRAIN TEMP SENSOR
(NICKEL ELEMENT)
RT3
HYD PUMP D1 CASE DRAIN TEMP SENSOR
(NICKEL ELEMENT)
RT4
HYD PUMP B2 CASE DRAIN TEMP SENSOR
(NICKEL ELEMENT)
RT5
HYD PUMP C2 CASE DRAIN TEMP SENSOR
(NICKEL ELEMENT)
RT6
DAU NO. 2
HYDRAULIC PUMP A1 CASE DRAIN TEMP MON SIG CHANNEL 69 SIG CODE 129-1
EXCITATION NO. 1 1 MA CONSTANT CURRENT SUPPLY
HYDRAULIC PUMP B1 CASE DRAIN TEMP MON SIG CHANNEL 70 SIG CODE 129-2
EXCITATION NO. 2 1 MA CONSTANT CURRENT SUPPLY
HYDRAULIC PUMP C1 CASE DRAIN TEMP MON SIG CHANNEL 71 SIG CODE 129-3
EXCITATION NO. 3 1 MA CONSTANT CURRENT SUPPLY
HYDRAULIC PUMP D1 CASE DRAIN TEMP MON SIG CHANNEL 72 SIG CODE 129-4
EXCITATION NO. 4 1 MA CONSTANT CURRENT SUPPLY
HYDRAULIC PUMP B2 CASE DRAIN TEMP MON SIG CHANNEL 53 SIG CODE 129-5
EXCITATION NO. 5 1 MA CONSTANT CURRENT SUPPLY
EXCITATION COMMON
HYDRAULIC PUMP C2 CASE DRAIN TEMP MON SIG CHANNEL 54 SIG CODE 129-6
EXCITATION NO. 6 1 MA CONSTANT CURRENT SUPPLY
A1

SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (DEG F)	ACCURACY (DEG F)	SIG COND INPUT MVDC	SIG COND DIGITS
0	-40	±1.0	70.39	448
1	-4		83.77	471
2	+32		90.38	508
3	+68		97.31	547
4	+104		104.80	589
5	+140		112.28	631
6	+176		120.36	678
7	+212		128.85	724
8	+248		137.78	774
9	+284		147.11	827
10	+392	±1.0	177.95	999

SIG RECORDING SEQ	
SIG CODE	SEQ
129-1	203
129-2	204
129-3	205
129-4	206
129-5	207
129-6	208

AIDS 583 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
129-1	232
129-2	233
129-3	234
129-4	235
129-5	236
129-6	237

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31-32-07	1

NOTE

1 — 4 — NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATIONS PREFIXED WITH 3132

3 NO WIRE CONNECTION

4 DAU NO. 2 INTERNAL POWER SUPPLY

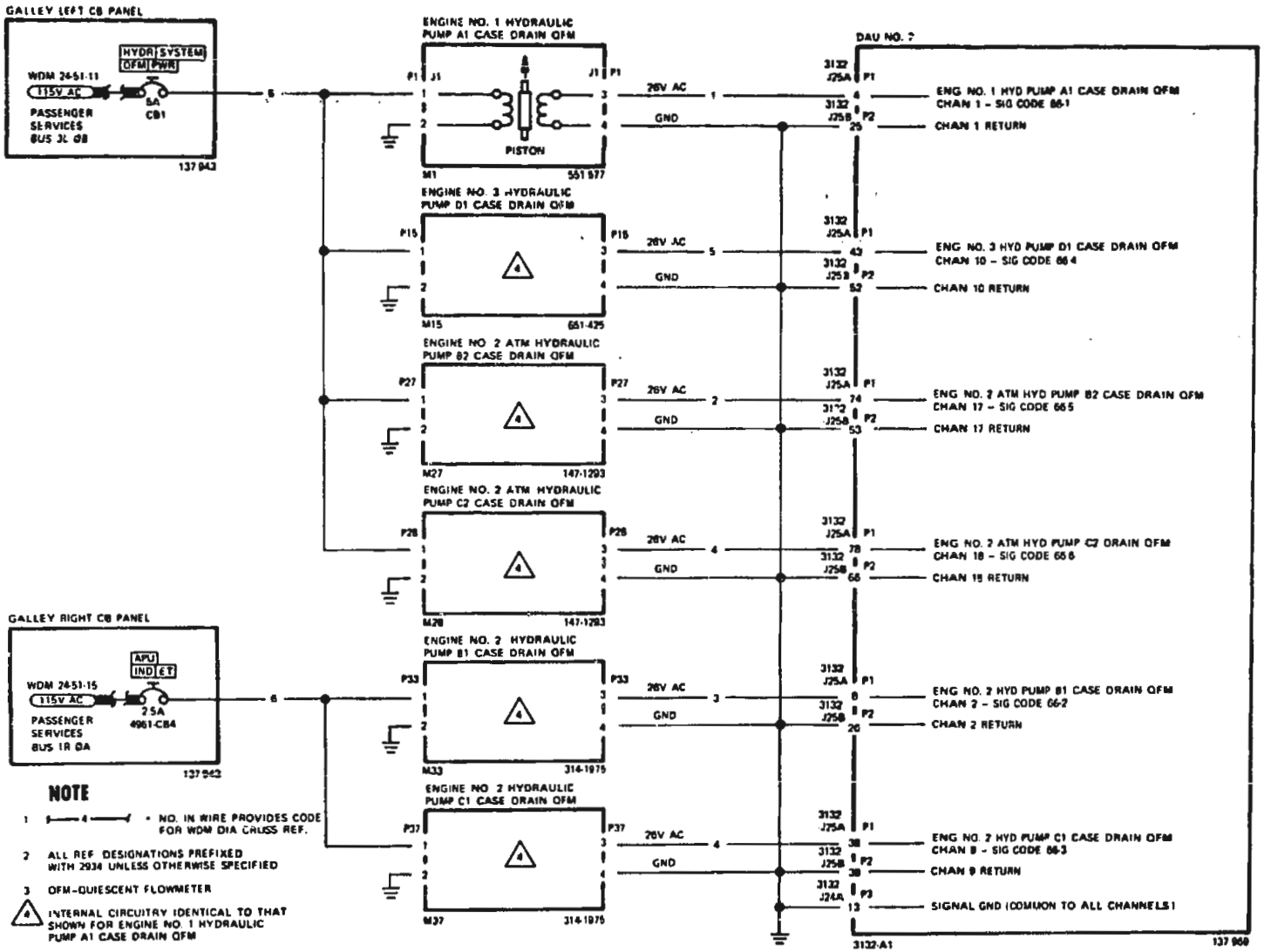
5 REF. MILT 7990 B, TABLE 1

EM1-0001-21-853

R Hydraulic Pumps Case Drain Temp Monitoring Schematic
R SCHEM 2

EFFECTIVITY: ALL

0018


GALLEY LEFT CB PANEL
HYDR SYSTEM QFM PWR
WDM 24-51-11
115V AC
5A
CB1
PASSENGER SERVICES BUS 3L 9B
137 943
ENGINE NO. 1 HYDRAULIC PUMP A1 CASE DRAIN QFM
PISTON
M1
551 977
ENGINE NO. 3 HYDRAULIC PUMP D1 CASE DRAIN QFM
M15
651-425
ENGINE NO. 2 ATM HYDRAULIC PUMP B2 CASE DRAIN QFM
M27
147-1293
ENGINE NO. 2 ATM HYDRAULIC PUMP C2 CASE DRAIN QFM
M28
147-1293
ENGINE NO. 2 HYDRAULIC PUMP B1 CASE DRAIN QFM
M33
314-1975
ENGINE NO. 2 HYDRAULIC PUMP C1 CASE DRAIN QFM
M37
314-1975
GALLEY RIGHT CB PANEL
APU IND ET
WDM 24-51-15
115V AC
2 5A
4961-CB4
PASSENGER SERVICES BUS 1R 9A
137 942
DAU NO. 2
3132 J25A P1
3132 J25B P2
3132 J24A P3
26V AC
GND
ENG NO. 1 HYD PUMP A1 CASE DRAIN QFM CHAN 1 – SIG CODE 66-1
CHAN 1 RETURN
ENG NO. 3 HYD PUMP D1 CASE DRAIN QFM CHAN 10 – SIG CODE 66-4
CHAN 10 RETURN
ENG NO. 2 ATM HYD PUMP B2 CASE DRAIN QFM CHAN 17 – SIG CODE 66-5
CHAN 17 RETURN
ENG NO. 2 ATM HYD PUMP C2 DRAIN QFM CHAN 18 – SIG CODE 66-6
CHAN 18 RETURN
ENG NO. 2 HYD PUMP B1 CASE DRAIN QFM CHAN 2 – SIG CODE 66-2
CHAN 2 RETURN
ENG NO. 2 HYD PUMP C1 CASE DRAIN QFM CHAN 9 – SIG CODE 66-3
CHAN 9 RETURN
SIGNAL GND (COMMON TO ALL CHANNELS)
3132-A1
137 960

NOTE

1. NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.
2. ALL REF DESIGNATIONS PREFIXED WITH 2934 UNLESS OTHERWISE SPECIFIED
3. QFM–QUIESCENT FLOWMETER
4. INTERNAL CIRCUITRY IDENTICAL TO THAT SHOWN FOR ENGINE NO. 1 HYDRAULIC PUMP A1 CASE DRAIN QFM

SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (GPM)	ACCURACY (%)	SIG COND INPUT VAC	SIG COND DIGITS
0	1.40		3.161	122
1	1.96		4.426	170
2	2.52	±10% FS	5.690	219
3	3.08	±5% FS	6.955	267
4	3.64		8.219	316
5	4.20		9.484	365
6	4.76		10.748	413
7	5.32		12.013	462
8	5.88		13.277	511
9	6.44		14.542	559
10	7.00	±5% FS	15.806	608

SIG RECORDING SEQ	
SIG CODE	SEQ
66-1	193
66-2	194
66-3	195
66-4	196
66-5	197
66-6	198

AIDS 583 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
66-1	222
66-2	223
66-3	224
66-4	225
66-5	226
66-6	227

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31-32-05	1
2	31-32-05	3
3	31-32-05	5
4	31-32-06	1
5	31-32-06	3
6	20-34-01	

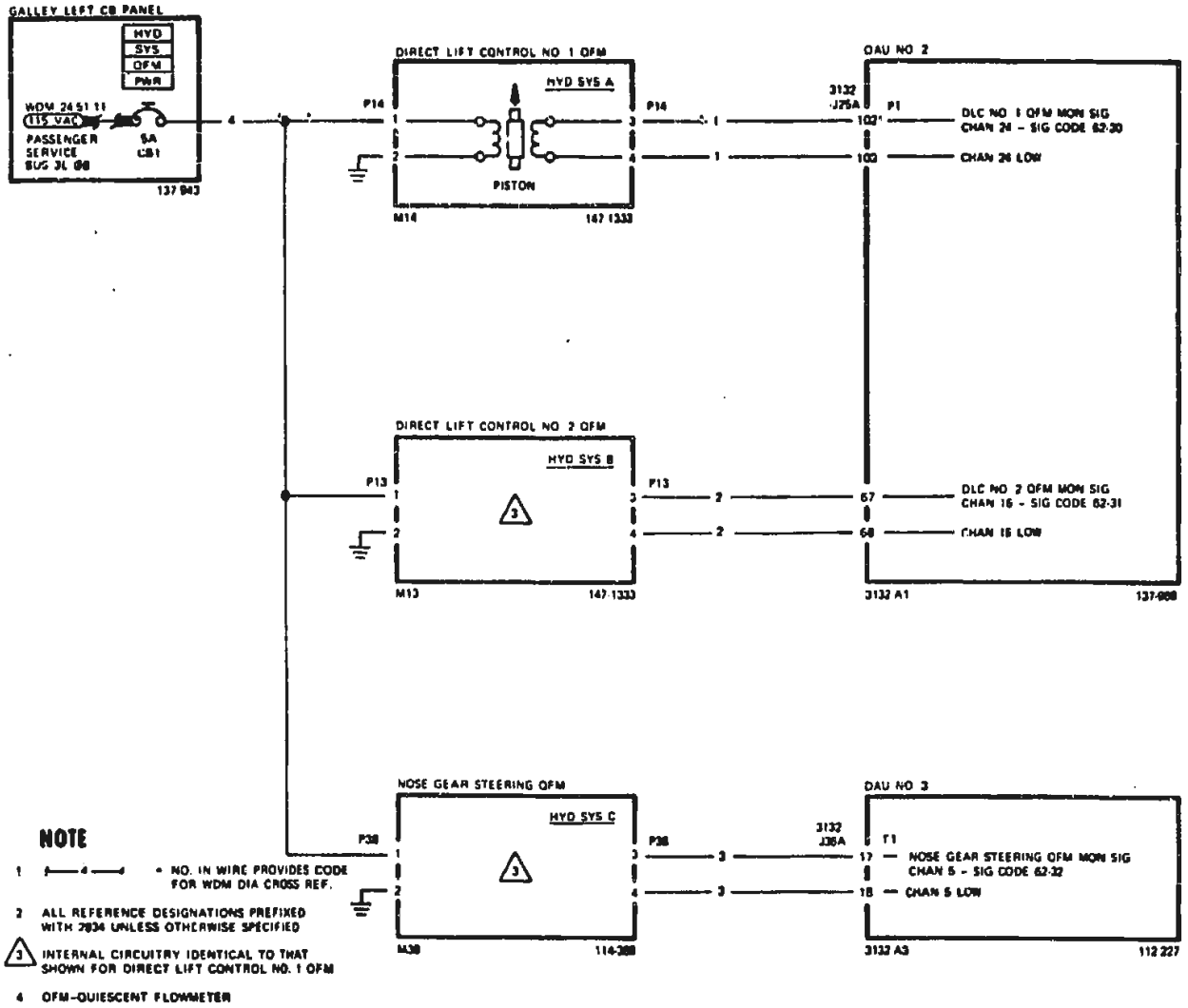
EM1-0001-31-830

R
R

Hydraulic Pumps QFM Monitoring Schematic
SCHEM 3

EFFECTIVITY: ALL

0018



NOTE

1 —4— * NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REFERENCE DESIGNATIONS PREFIXED WITH 2834 UNLESS OTHERWISE SPECIFIED

3 INTERNAL CIRCUITRY IDENTICAL TO THAT SHOWN FOR DIRECT LIFT CONTROL NO. 1 OFM

4 OFM-QUIESCENT FLOWMETER

DIRECT LIFT CONTROL OFM SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (GPM)	SIG COND	
		INPUT VAC	DIGITS
0	0.20	2.20	186
1	0.28	3.08	261
2	0.36	3.96	336
3	0.44	4.84	410
4	0.52	5.72	485
5	0.60	6.60	559
6	0.68	7.48	634
7	0.76	8.36	708
8	0.84	9.24	783
9	0.92	10.12	858
10	1.00	11.00	932

NOSE GEAR STEERING OFM SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (GPM)	SIG COND	
		INPUT VAC	DIGITS
0	0.10	2.20	186
1	0.14	3.08	261
2	0.18	3.96	336
3	0.22	4.84	410
4	0.26	5.72	485
5	0.30	6.60	559
6	0.34	7.48	634
7	0.38	8.36	708
8	0.42	9.24	783
9	0.46	10.12	858
10	0.50	11.00	932

SIG RECORDING SEQ

SIG CODE	SEQ
62 30	238
62 31	239
62 32	240

AIDS 563 TESTER THUMBWHEEL ADDRESS

SIG CODE	ADDRESS
62 30	267
62 31	268
62 32	269

WDM DIA CROSS REF.

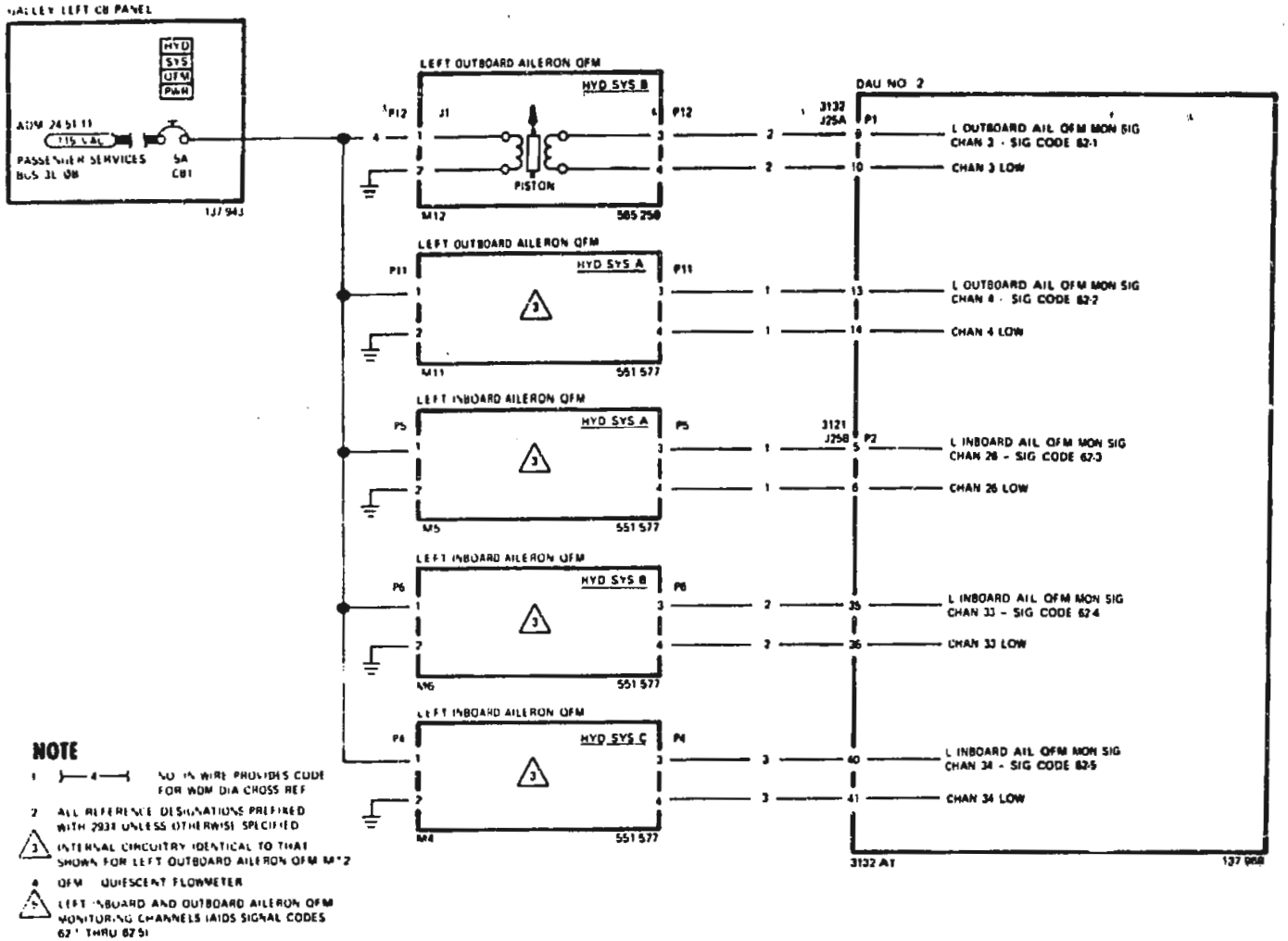
CODE	WIRING DIA	SH
1	31-32-08	1
2	31-32-08	3
3	31-32-08	1
4	20 34-01	

EM1-0001-31-035

R Direct Lift Control and Nose Gear Steering Servo
R Valve Return QFM Monitoring Schemat
R SCHEM 4

EFFECTIVITY: ALL

001B



NOTE

1. —4— SO IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF
2. ALL REFERENCE DESIGNATIONS PREFIXED WITH 2931 UNLESS OTHERWISE SPECIFIED
3. INTERNAL CIRCUITRY IDENTICAL TO THAT SHOWN FOR LEFT OUTBOARD AILERON QFM M12
4. QFM - QUIESCENT FLOWMETER
5. LEFT INBOARD AND OUTBOARD AILERON QFM MONITORING CHANNELS (AIDS SIGNAL CODES 62-1 THRU 62-5)

SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (GPM)	SIG COND INPUT VAC	SIG COND DIGITS
0	0.50	2.20	186
1	0.70	3.08	261
2	0.90	3.96	336
3	1.10	4.84	410
4	1.30	5.72	485
5	1.50	6.60	559
6	1.70	7.48	634
7	1.90	8.36	708
8	2.10	9.24	783
9	2.30	10.12	858
10	2.50	11.00	932

△5

SIG RECORDING SEQ	
SIG CODE	SEQ
62-1	209
62-2	210
62-3	211
62-4	212
62-5	213

△5

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
62-1	238
62-2	239
62-3	240
62-4	241
62-5	242

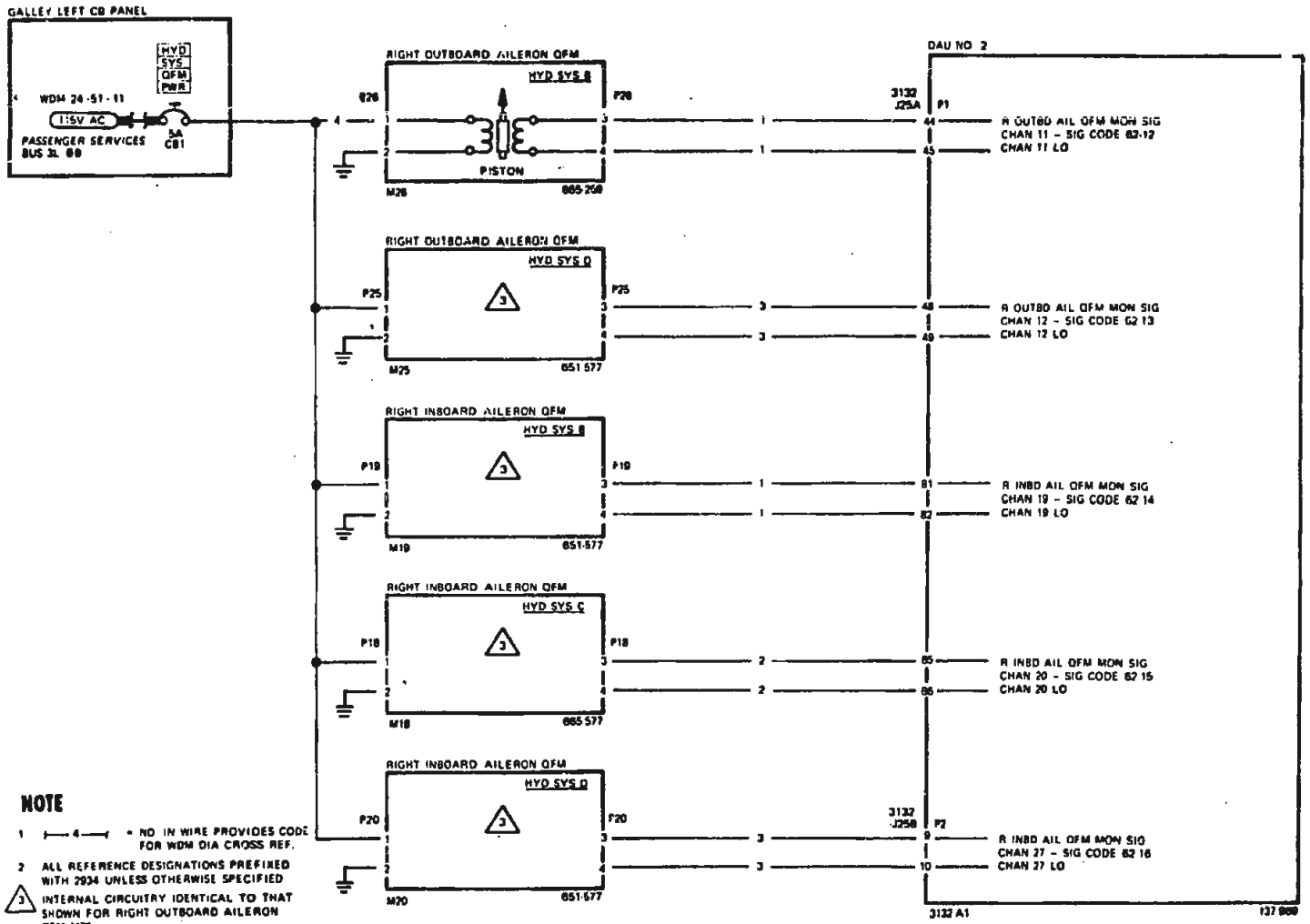
WDM DIA CROSS REF.		
CODE	WIRING DIA	SH
1	31-32-05	1
2	31-32-05	3
3	31-32-08	2
4	29-34-01	

EM1-0001-31-833

R Left Inboard and Outboard Aileron QFM Monitoring Schematic
R SCHEM 5

EFFECTIVITY: ALL

001B



NOTE

1 ⟵4⟶ * NO IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REFERENCE DESIGNATIONS PREFIXED WITH 2934 UNLESS OTHERWISE SPECIFIED

3 INTERNAL CIRCUITRY IDENTICAL TO THAT SHOWN FOR RIGHT OUTBOARD AILERON QFM M26

4 QFM - QUIESCENT FLOWMETER

SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (GPM)	SIG COND INPUT VAC	SIG COND DIGITS
0	0 50	2.20	186
1	0 70	3.08	261
2	0 90	3 96	336
3	1.10	4.84	410
4	1.30	5.72	485
5	1 50	6 60	559
6	1.70	7 48	634
7	1 90	8.36	708
8	2 10	9.24	783
9	2 30	10.12	858
10	2 50	11.00	932

SIG RECORDING SEQ	
SIG CODE	SEQ
62 12	220
62-13	221
62 14	222
62 15	223
62-16	224

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
62-12	249
62-13	250
62-14	251
62-15	252
62-16	253

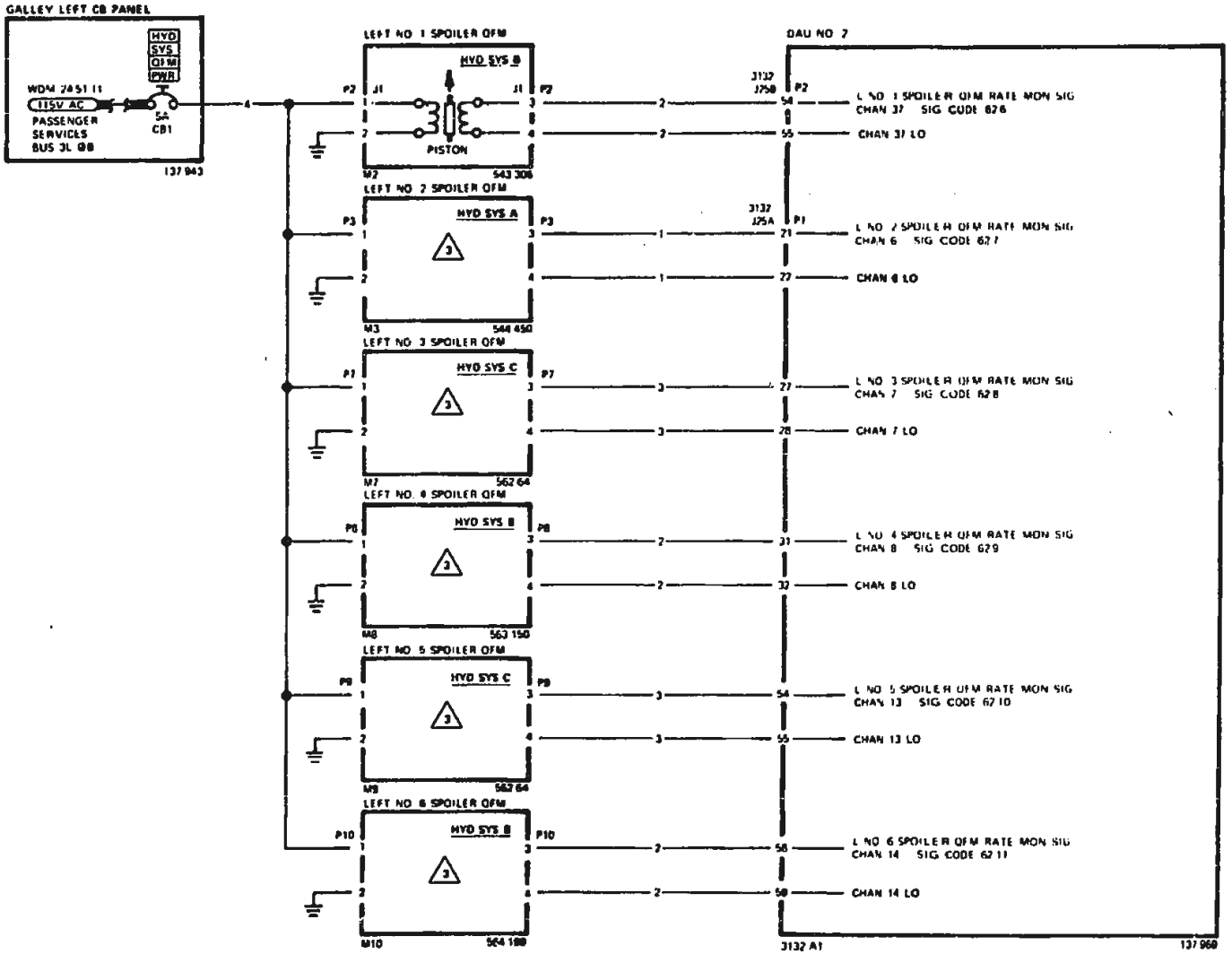
WDM DIA CROSS REF.		
CODE	WIRING DIA	SH
1	31 32-05	2
2	31 32-06	1
3	31 32-00	3
4	29-34-01	

EMI-0001-31-834

R Right Inboard and Outboard Aileron QFM Monitoring Schematic
R SCHEM 6

EFFECTIVITY: ALL

0018


GALLEY LEFT CB PANEL
HYD SYS QFM PWR
WDM 28511
115V AC
5A CB1
PASSENGER SERVICES BUS 3L 08
137 943
LEFT NO 1 SPOILER QFM
HYD SYS B
PISTON
M2 543 306
LEFT NO 2 SPOILER QFM
HYD SYS A
M3 544 450
LEFT NO 3 SPOILER QFM
HYD SYS C
M7 562 64
LEFT NO 4 SPOILER QFM
HYD SYS B
M8 563 150
LEFT NO 5 SPOILER QFM
HYD SYS C
M9 562 64
LEFT NO 6 SPOILER QFM
HYD SYS B
M10 564 188
DAU NO 7
3132 J25B
3132 J25A
L NO 1 SPOILER QFM RATE MON SIG CHAN 37 SIG CODE 626
CHAN 37 LO
L NO 2 SPOILER QFM RATE MON SIG CHAN 6 SIG CODE 627
CHAN 6 LO
L NO 3 SPOILER QFM RATE MON SIG CHAN 7 SIG CODE 628
CHAN 7 LO
L NO 4 SPOILER QFM RATE MON SIG CHAN 8 SIG CODE 629
CHAN 8 LO
L NO 5 SPOILER QFM RATE MON SIG CHAN 13 SIG CODE 6210
CHAN 13 LO
L NO 6 SPOILER QFM RATE MON SIG CHAN 14 SIG CODE 6211
CHAN 14 LO
3132 A1
137 960

SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (GPM)	SIG COND INPUT VAC	SIG COND DIGITS
0	0 20	2 20	189
1	0 28	3 08	261
2	0 36	3 96	336
3	0 44	4 84	410
4	0 52	5 72	485
5	0 60	6 60	559
6	0 68	7 48	634
7	0 76	8 36	708
8	0 84	9 24	783
9	0 92	10 12	858
10	1 00	11 00	932

SIG RECORDING SEQ	
SIG CODE	SEQ
626	214
627	215
628	216
629	217
6210	218
6211	219

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
626	243
627	244
628	245
629	246
6210	247
6211	248

WDM DIA CROSS REF

CODE	WIRING DIA	SH
1	31 32 05	1
2	31 32 05	3
3	31 32 05	2
4	29 34 01	

NOTE

1 —4— NO IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF DESIGNATIONS PREFIXED WITH 2934 UNLESS OTHERWISE SPECIFIED

3 INTERNAL CIRCUITRY IDENTICAL TO THAT SHOWN FOR LEFT NO 1 SPOILER QFM

4 QFM QUIESCENT FLOWMETER

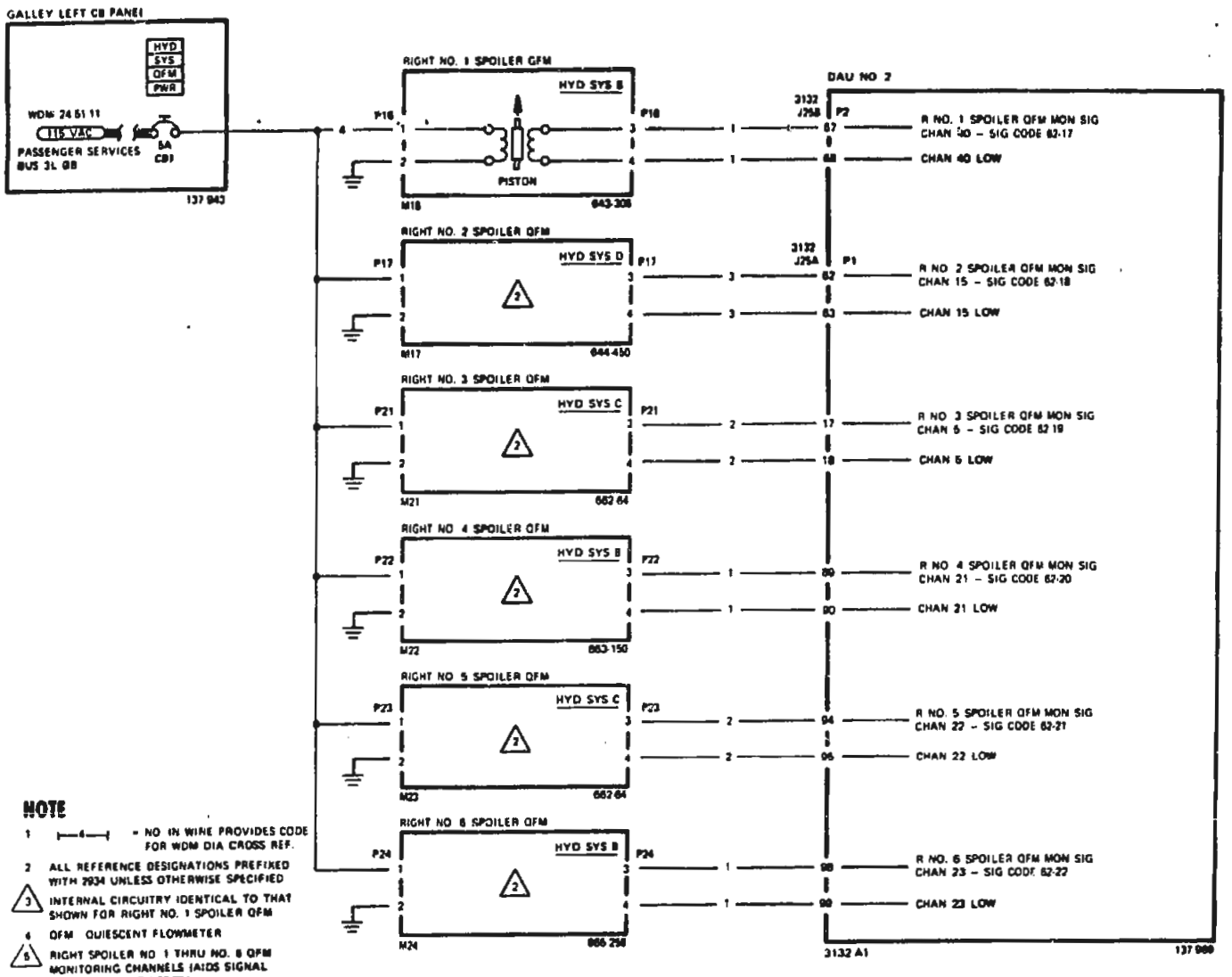
EM1 0001 31 931

R
R

Left Spoilers QFM Monitoring Schematic
SCHEM 7

EFFECTIVITY: ALL

001B



NOTE

1 ⊢4⊣ = NO IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REFERENCE DESIGNATIONS PREFIXED WITH 2934 UNLESS OTHERWISE SPECIFIED

3 INTERNAL CIRCUITRY IDENTICAL TO THAT SHOWN FOR RIGHT NO. 1 SPOILER QFM

4 QFM QUIESCENT FLOWMETER

5 RIGHT SPOILER NO 1 THRU NO. 6 QFM MONITORING CHANNELS (AIDS SIGNAL CODES 62 17 THRU 62 22)

SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (GPM)	SIG COND INPUT VAC	SIG COND DIGITS
0	0.20	2.20	188
1	0.28	3.08	261
2	0.36	3.96	338
3	0.44	4.84	410
4	0.52	5.72	485
5	0.60	6.60	559
6	0.68	7.48	634
7	0.76	8.36	709
8	0.84	9.24	783
9	0.92	10.12	858
10	1.00	11.00	932

5

SIG RECORDING SEQ	
SIG CODE	SEQ
62 17	225
62 18	226
62 19	227
62 20	228
62 21	229
62 22	230

5

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
62 17	254
62 18	255
62 19	256
62 20	257
62 21	258
62 22	259

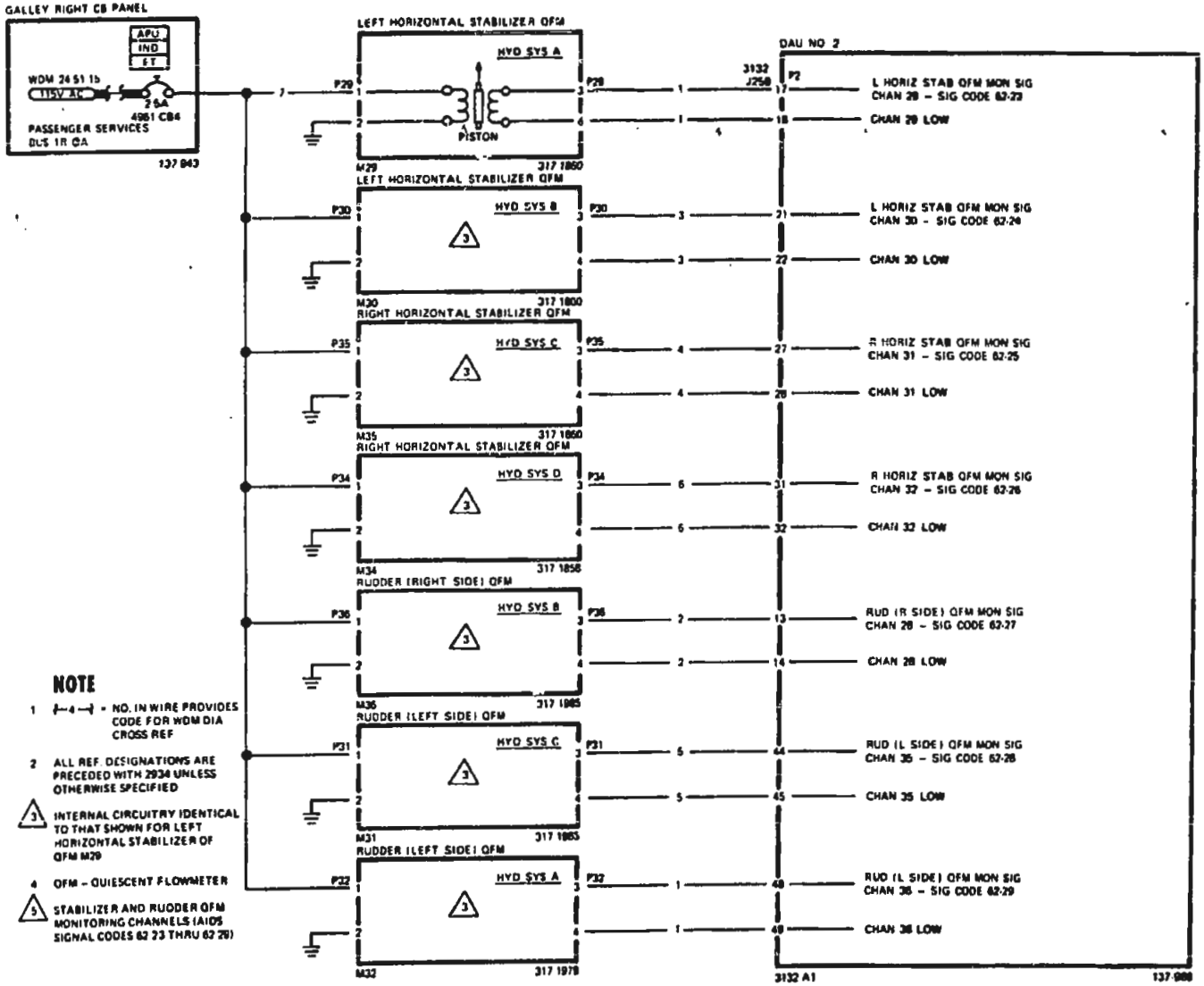
WDM DIA CROSS REF.		
CODE	WIRING DIA	SH
1	31 32 05	2
2	31 32 06	1
3	31 32 08	3
4	29-34-01	

EM1-0001-31-832

R Right Spoilers QFM Monitoring Schematic
R SCHEM 8

EFFECTIVITY: ALL

0018



NOTE

1. ⊢4⊣ = NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF
2. ALL REF. DESIGNATIONS ARE PRECEDED WITH 2934 UNLESS OTHERWISE SPECIFIED
3. INTERNAL CIRCUITRY IDENTICAL TO THAT SHOWN FOR LEFT HORIZONTAL STABILIZER QFM M29
4. QFM – QUIESCENT FLOWMETER
5. STABILIZER AND RUDDER QFM MONITORING CHANNELS (AIDS SIGNAL CODES 62 23 THRU 62 29)

STABILIZER QFM SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (GPM)	SIG COND INPUT VAC	SIG COND DIGITS
0	0.70	2 20	185
1	0 98	3 08	261
2	1.26	3 95	336
3	1 54	4 84	410
4	1.82	5.72	485
5	2.10	6 60	560
6	2.38	7.48	634
7	2 66	8.36	709
8	2.94	9 24	783
9	3.22	10.12	858
10	3 50	11 00	932

RUDDER QFM SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (GPM)	SIG COND INPUT VAC	SIG COND DIGITS
0	0.60	2 20	185
1	0.70	3.08	261
2	0.90	3 96	336
3	1.10	4 84	410
4	1.30	5.72	485
5	1.50	6.60	560
6	1.70	7.48	634
7	1.90	8.36	709
8	2.10	9.24	783
9	2.30	10.12	858
10	2.50	11.00	932

5

SIG RECORDING SEQ SIG CODE	SEQ
62 23	231
62 24	232
62 25	233
62 26	234
62 27	235
62 28	236
62 29	237

5

AIDS 563 TESTER THUMBWHEEL ADDRESS SIG CODE	ADDRESS
62 23	280
62 24	281
62 25	282
62 26	283
62 27	284
62 28	285
62 29	286

WDM DIA CROSS REF.

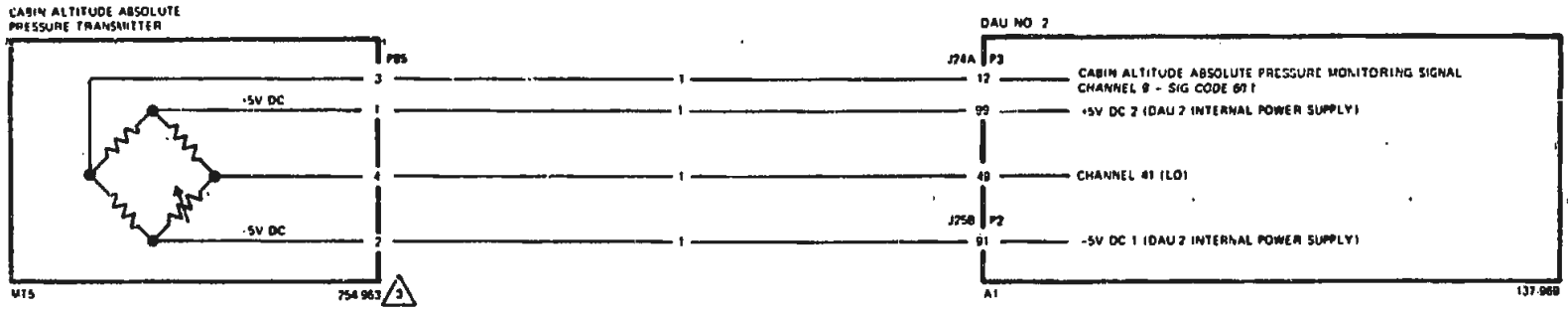
CODE	WIRING DIA	SH
1	31 32 06	1
2	31 32 06	2
3	31 32 06	3
4	31 32 06	1
5	31 32 06	2
6	31 32 06	3
7	29 34 01	

EMI-0001-31-836

R R Stabilizer and Rudder QFM Monitoring Schematic
SCHEM 9

EFFECTIVITY: ALL

0018



SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (PSIA)	ACCURACY (%)	SIG COND	
			INPUT MVDC	DIGITS
0	0.0	1.0	0	000
1	1.6		3	087
2	3.2		6	175
3	4.8		9	262
4	6.4		12	349
5	8.0		15	437
6	9.6		18	524
7	11.2		21	612
8	12.8		24	699
9	14.4		27	786
10	16.0	1.0	30	874

SIG RECORDING SEQ	
SIG CODE	SEQ
60 1	150

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
60 1	179

WDM DIA CROSS REF.		
CODE	WIRING DIA	SH
1	31 32 02	1

NOTE

1 ⟨4⟩ • NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATIONS PRECEDED WITH 3132

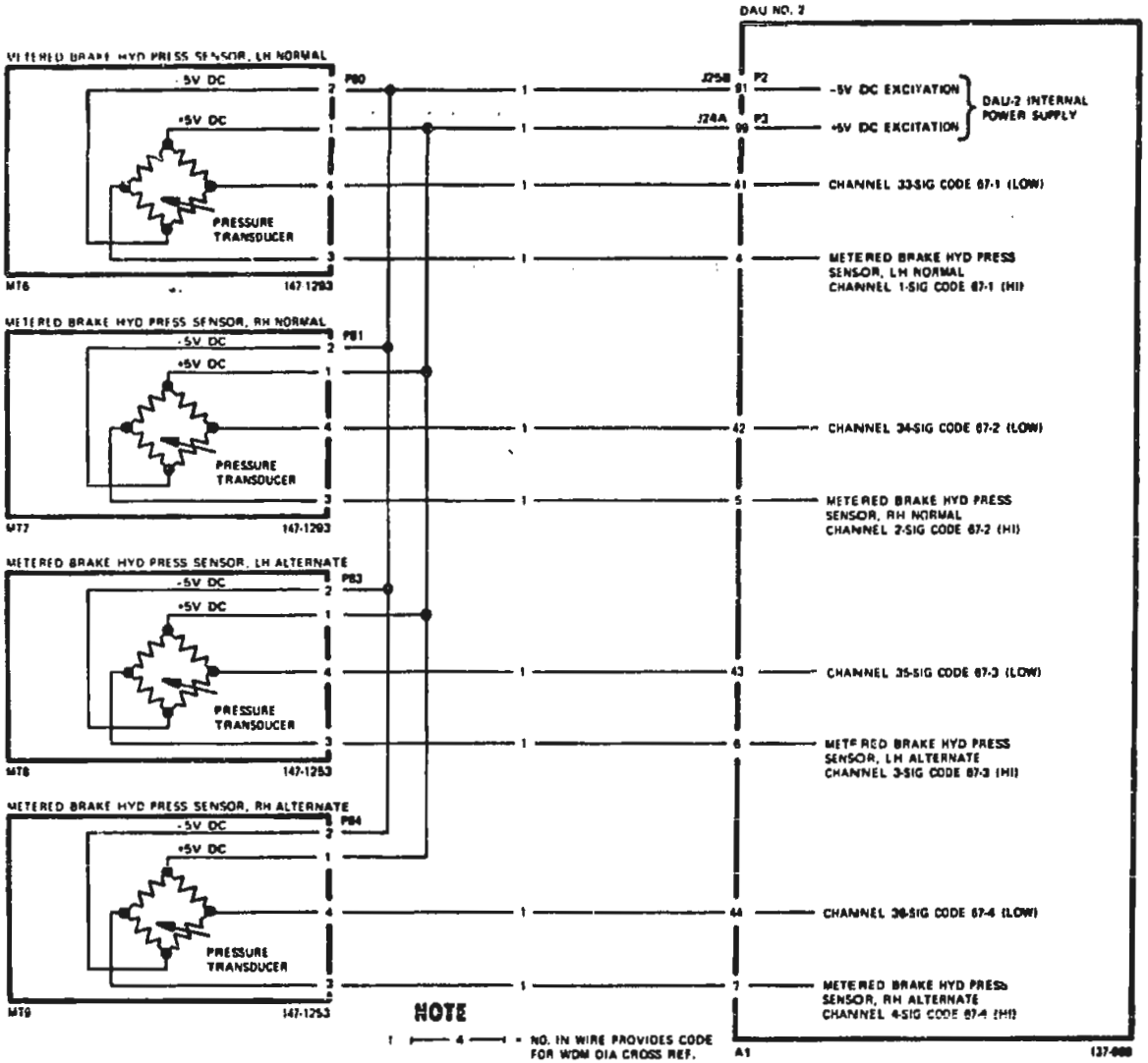
3 INSTALLED IN AREA ABOVE CEILING, MID CABIN RIGHT SIDE

EM1-0001-31-840

R Cabin Altitude Absolute Pressure Monitoring Schematic
R SCHEM 10

EFFECTIVITY: ALL

001B


METERED BRAKE HYD PRESS SENSOR, LH NORMAL
-5V DC
+5V DC
PRESSURE TRANSDUCER
MT6
147-1293
METERED BRAKE HYD PRESS SENSOR, RH NORMAL
MT7
147-1293
METERED BRAKE HYD PRESS SENSOR, LH ALTERNATE
MT8
147-1253
METERED BRAKE HYD PRESS SENSOR, RH ALTERNATE
MT9
147-1253
P80
P81
P83
P84
DAU NO. 2
J25B
J24A
P2
P3
-5V DC EXCITATION
+5V DC EXCITATION
DAU-2 INTERNAL POWER SUPPLY
CHANNEL 33-SIG CODE 67-1 (LOW)
METERED BRAKE HYD PRESS SENSOR, LH NORMAL CHANNEL 1-SIG CODE 67-1 (HI)
CHANNEL 34-SIG CODE 67-2 (LOW)
METERED BRAKE HYD PRESS SENSOR, RH NORMAL CHANNEL 2-SIG CODE 67-2 (HI)
CHANNEL 35-SIG CODE 67-3 (LOW)
METERED BRAKE HYD PRESS SENSOR, LH ALTERNATE CHANNEL 3-SIG CODE 67-3 (HI)
CHANNEL 36-SIG CODE 67-4 (LOW)
METERED BRAKE HYD PRESS SENSOR, RH ALTERNATE CHANNEL 4-SIG CODE 67-4 (HI)
A1
NOTE
1 — 4 — 1 = NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.
2 ALL REF. DESIGNATIONS PREFIXED WITH 3132

SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (PSI)	ACCURACY (%)	SIG COND	
			INPUT MVDC	DIGITS
0	0	1.0	0	000
1	300		3	087
2	600		6	175
3	900		9	262
4	1200		12	349
5	1500		15	437
6	1800		18	524
7	2100		21	612
8	2400		24	699
9	2700		27	786
10	3000	1.0	30	874

SIG RECORDING SEQ	
SIG CODE	SEQ
67-1	198
67-2	200
67-3	201
67-4	202

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
67-1	228
67-2	229
67-3	230
67-4	231

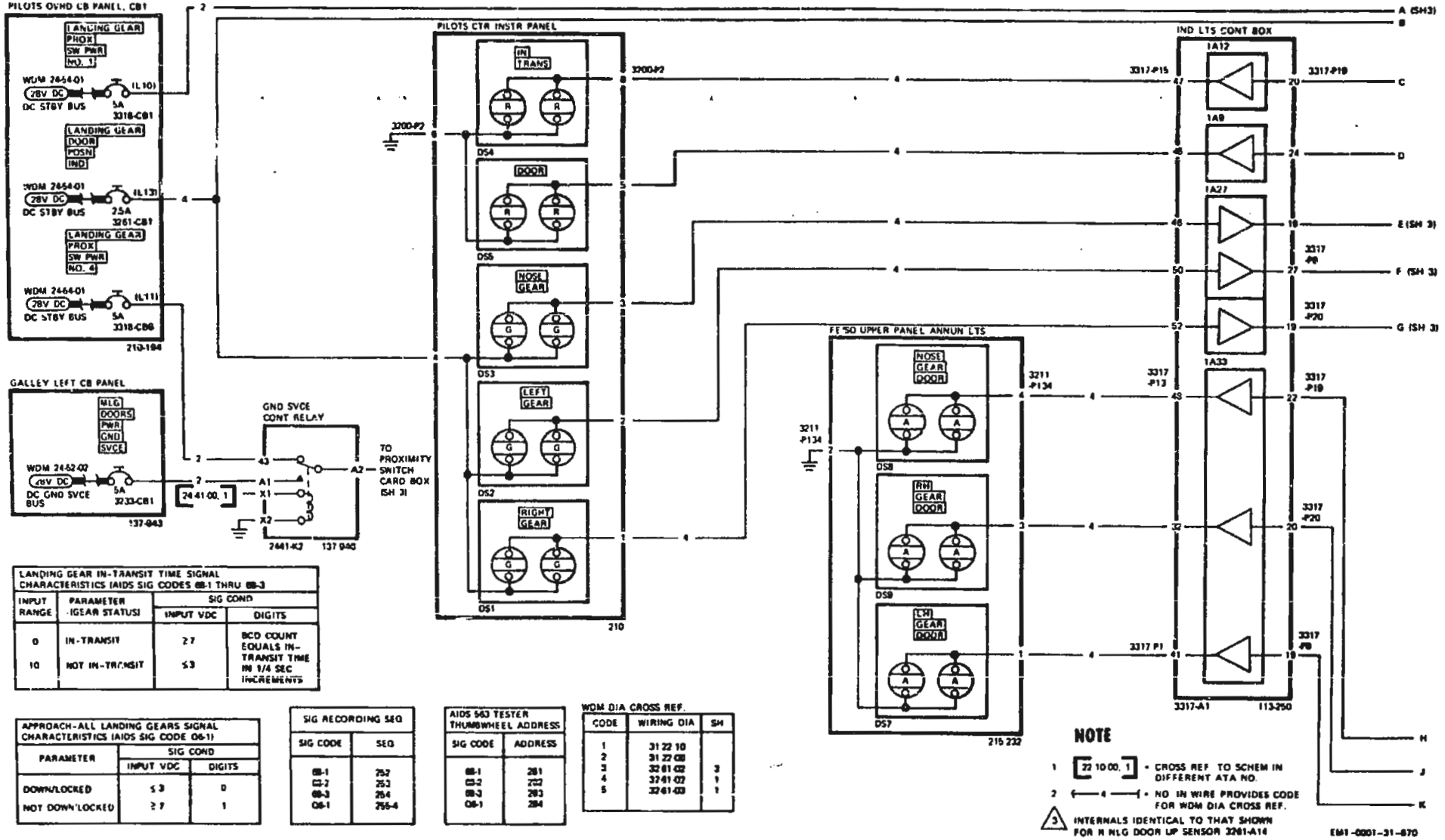
WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31-32-08	1

EM1-0001-31-864

R Normal and Alternate Brake Metered Hydraulic Pressure
R Monitoring Schematic
R SCHEM 11

EFFECTIVITY: ALL



LANDING GEAR IN-TRANSIT TIME SIGNAL CHARACTERISTICS (AIDS SIG CODES 08-1 THRU 08-3

INPUT RANGE	PARAMETER (GEAR STATUS)	SIG COND	
		INPUT VDC	DIGITS
0	IN-TRANSIT	≥ 7	BCD COUNT EQUALS IN-TRANSIT TIME IN 1/4 SEC INCREMENTS
10	NOT IN-TRANSIT	≤ 3	

APPROACH-ALL LANDING GEARS SIGNAL CHARACTERISTICS (AIDS SIG CODE 06-1)

PARAMETER	SIG COND	
	INPUT VDC	DIGITS
DOWN/LOCKED	≤ 3	0
NOT DOWN/LOCKED	≥ 7	1

SIG RECORDING SEQ	
SIG CODE	SEQ
08-1	252
08-2	253
08-3	254
06-1	255-4

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
08-1	281
08-2	282
08-3	283
06-1	284

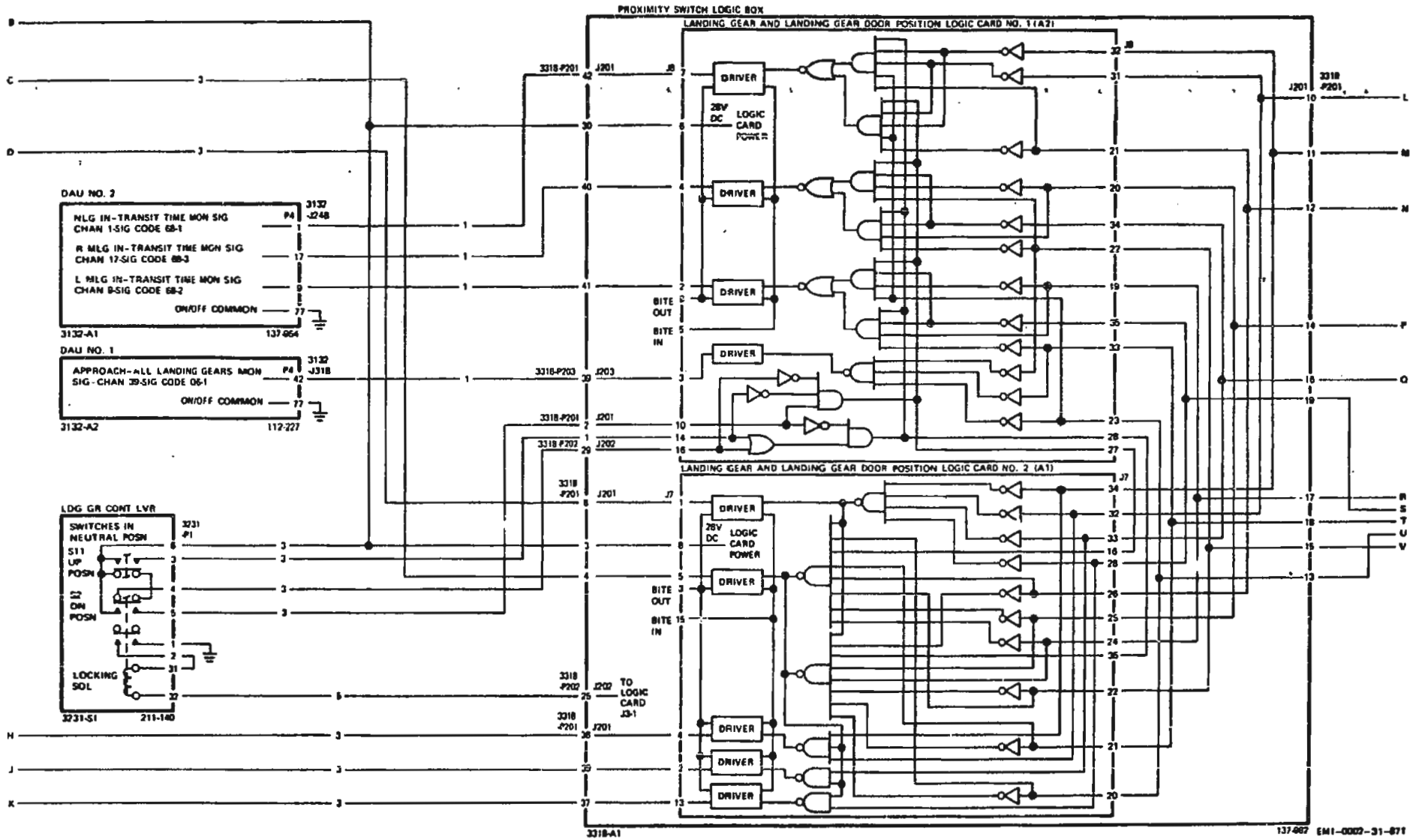
WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31 22 10	
2	31 22 08	
3	3261-02	3
4	3261-02	1
5	3261-03	1

R Landing Gear In-Transit Time and Approach - All Landing
R Gears Position Monitoring Schematic
R SCHEM 12 (Sheet 1)

EFFECTIVITY: ALL

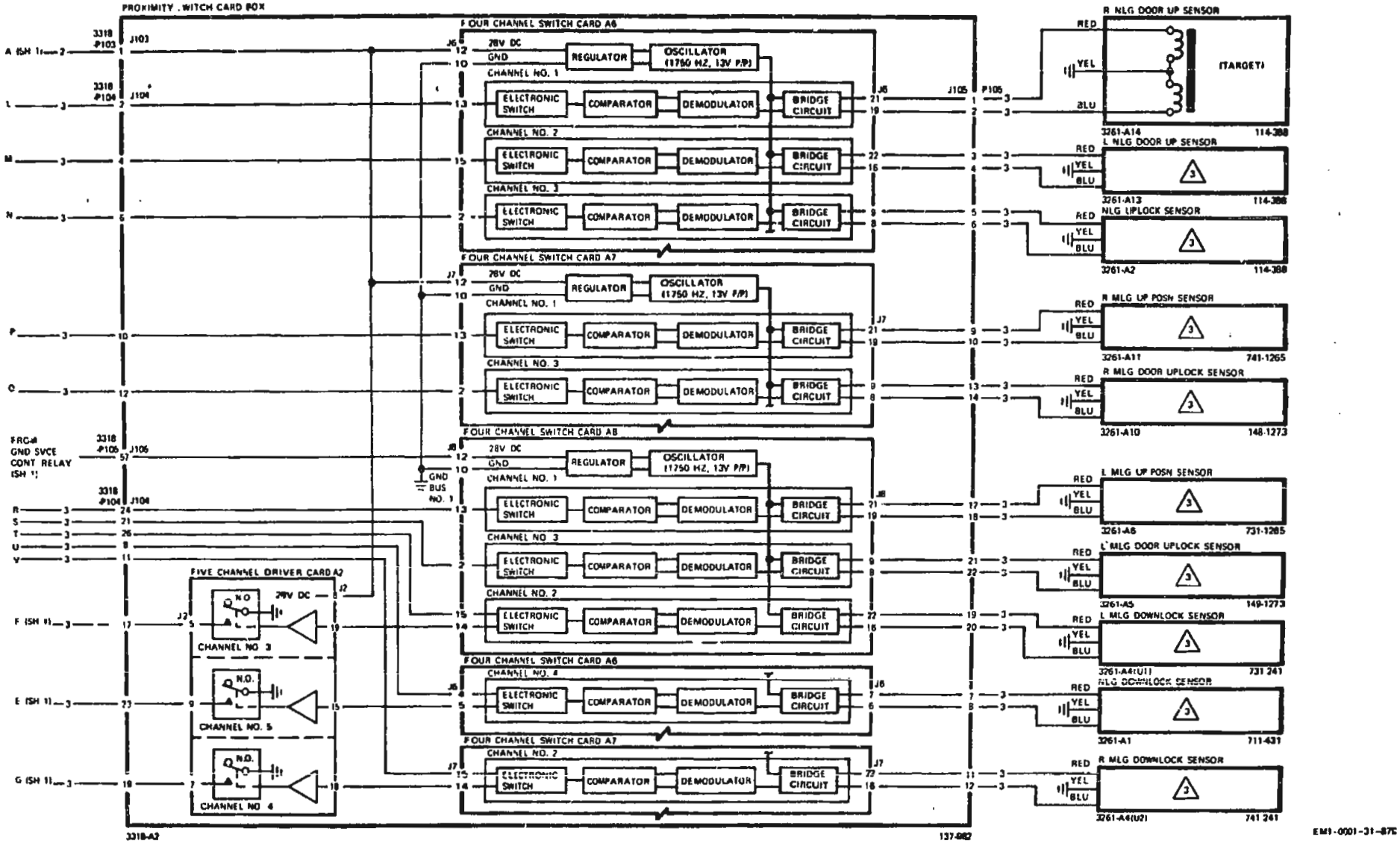
001B



R Landing Gear In-Transit Time and Approach - All Landing
R Gears Position Monitoring Schematic
R SCHEM 12 (Sheet 2)

EFFECTIVITY: ALL

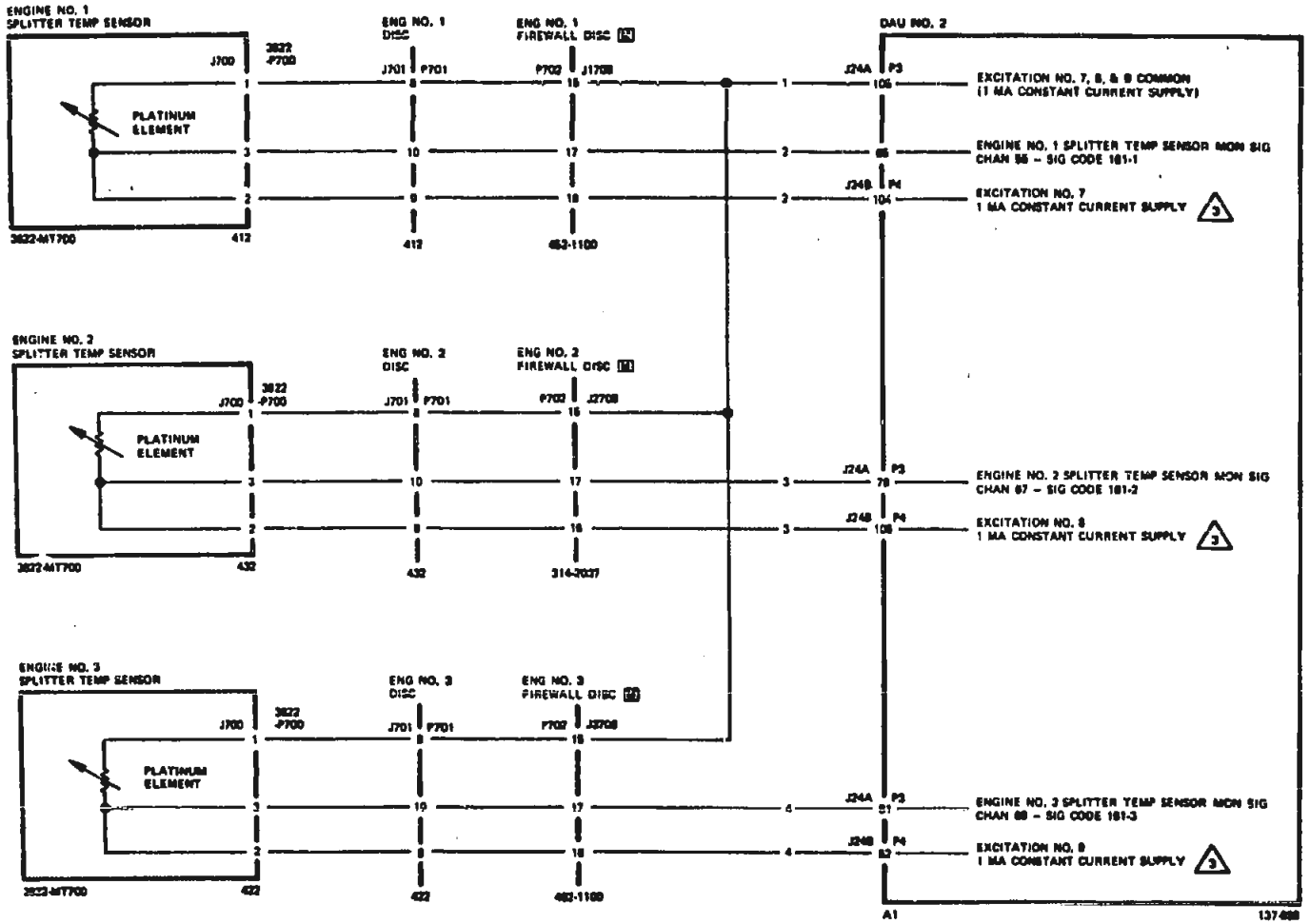
001B



R Landing Gear In-Transit Time and Approach - All Landing
R Gears Position Monitoring Schematic
R SCHEM 12 (Sheet 3)

EFFECTIVITY: ALL

0018


ENGINE NO. 1
SPLITTER TEMP SENSOR
PLATINUM ELEMENT
ENG NO. 1 DISC
ENG NO. 1 FIREWALL DISC
DAU NO. 2
EXCITATION NO. 7, 8, & 9 COMMON
(1 MA CONSTANT CURRENT SUPPLY)
ENGINE NO. 1 SPLITTER TEMP SENSOR MON SIG
CHAN 56 – SIG CODE 161-1
EXCITATION NO. 7
1 MA CONSTANT CURRENT SUPPLY
ENGINE NO. 2
SPLITTER TEMP SENSOR
PLATINUM ELEMENT
ENG NO. 2 DISC
ENG NO. 2 FIREWALL DISC
ENGINE NO. 2 SPLITTER TEMP SENSOR MON SIG
CHAN 67 – SIG CODE 161-2
EXCITATION NO. 8
1 MA CONSTANT CURRENT SUPPLY
ENGINE NO. 3
SPLITTER TEMP SENSOR
PLATINUM ELEMENT
ENG NO. 3 DISC
ENG NO. 3 FIREWALL DISC
ENGINE NO. 3 SPLITTER TEMP SENSOR MON SIG
CHAN 68 – SIG CODE 161-3
EXCITATION NO. 9
1 MA CONSTANT CURRENT SUPPLY
A1

SIGNAL CHARACTERISTICS (AIDS)					
INPUT RANGE	PARAMETER DEG C	PARAMETER Ω	ACCURACY (± DEG C)	SIG COND INPUT MVDC	SIG COND DIGITS
0	-30	92.00	0.27	92.00	917
1	00	100.00	0.25	100.00	992
2	+50	119.81	0.36	119.81	673
3	+100	139.33	0.50	139.33	783
4	+150	158.56	0.66	158.56	891
5	+200	177.49	0.80	177.49	997

SIG RECORDING SEQ	
SIG CODE	SEQ
161-1	29
161-2	66
161-3	83

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
161-1	058
161-2	085
161-3	112

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31-32-07	1
2	31-32-13	B
3	31-32-13	B

NOTE

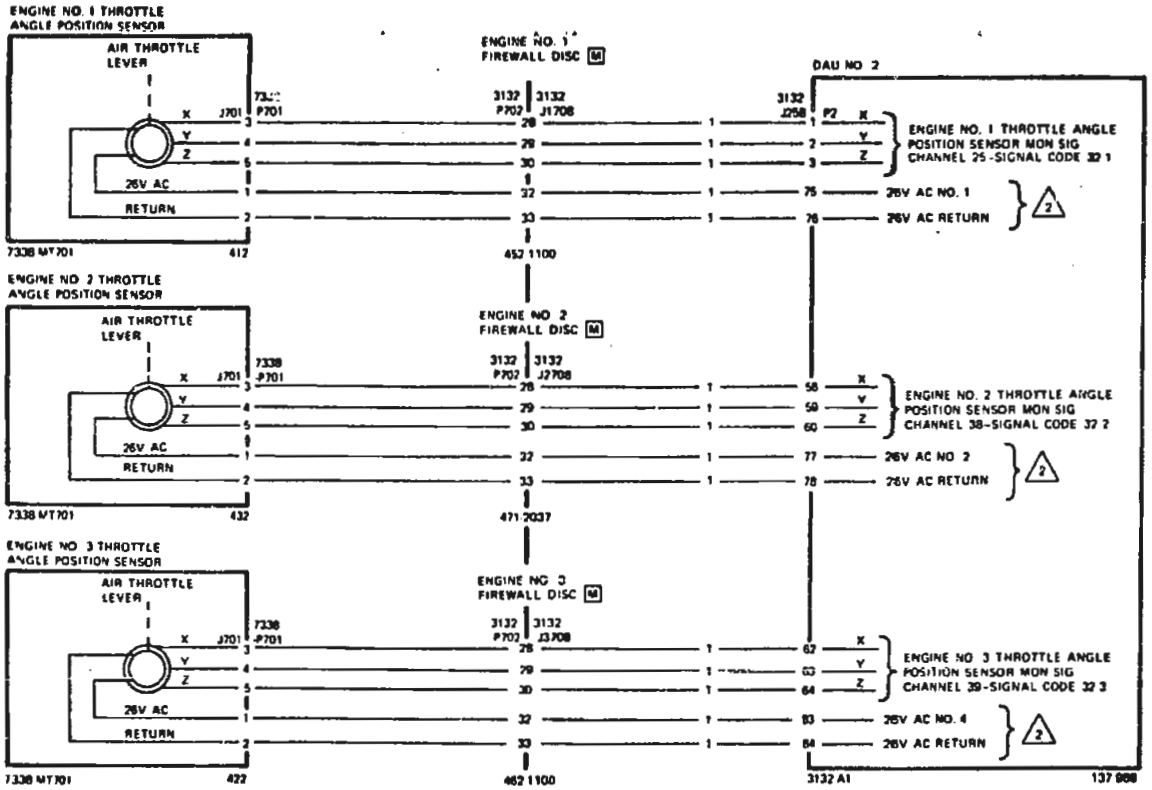
1 ⟨—4——5 = NO. IN WIRE PROVIDES CODE

2 ALL REF. DESIGNATIONS PREFIXED WITH 3132 UNLESS OTHERWISE SPECIFIED

3 DAU NO. 2 INTERNAL POWER SOURCE

R Engine Splitter Temperature Monitoring Schematic
R SCHEM 13

EFFECTIVITY: ALL



NOTE

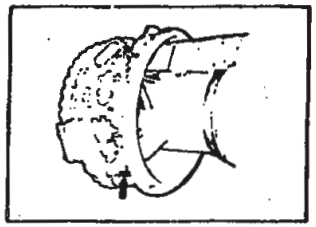
1 ⟶ 4 ⟶ * NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 DAU NO. 2 INTERNAL POWER SOURCE

3 RELATED SIGNAL PARTICULARS

a SYNCHRO TRAVEL 270 DEGREES

b DIGITAL COUNT READOUT IS 500 AT THE RIG POINT OF 41.5 DEGREES THROTTLE LEVER ANGLE AND 180 DEGREES SYNCHRO ANGLE



THROTTLE ANGLE POSITION SENSOR INSTALLATION (TYPICAL)

SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE (%)	PARAMETER (LEVER ANGLE DEG)	ACCURACY (THROTTLE ANGLE DEG)	SIG COND INPUT DEG (SYNCHRO ANGLE)	SIG COND DIGITS
0	1	±0.5	55.5	154
1	10		82.5	229
2	19		109.5	304
3	28		136.5	378
4	37		163.5	454
5	46		190.5	529
6	55		217.5	604
7	64		244.5	679
8	73		271.5	754
9	82		298.5	829
10	91	±0.5	325.5	904

SIG RECORDING SEQ	
SIG CODE	SEQ
32 1	21
32 2	48
32 3	75

AIDS 663 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
32 1	050
32 2	077
32 3	100

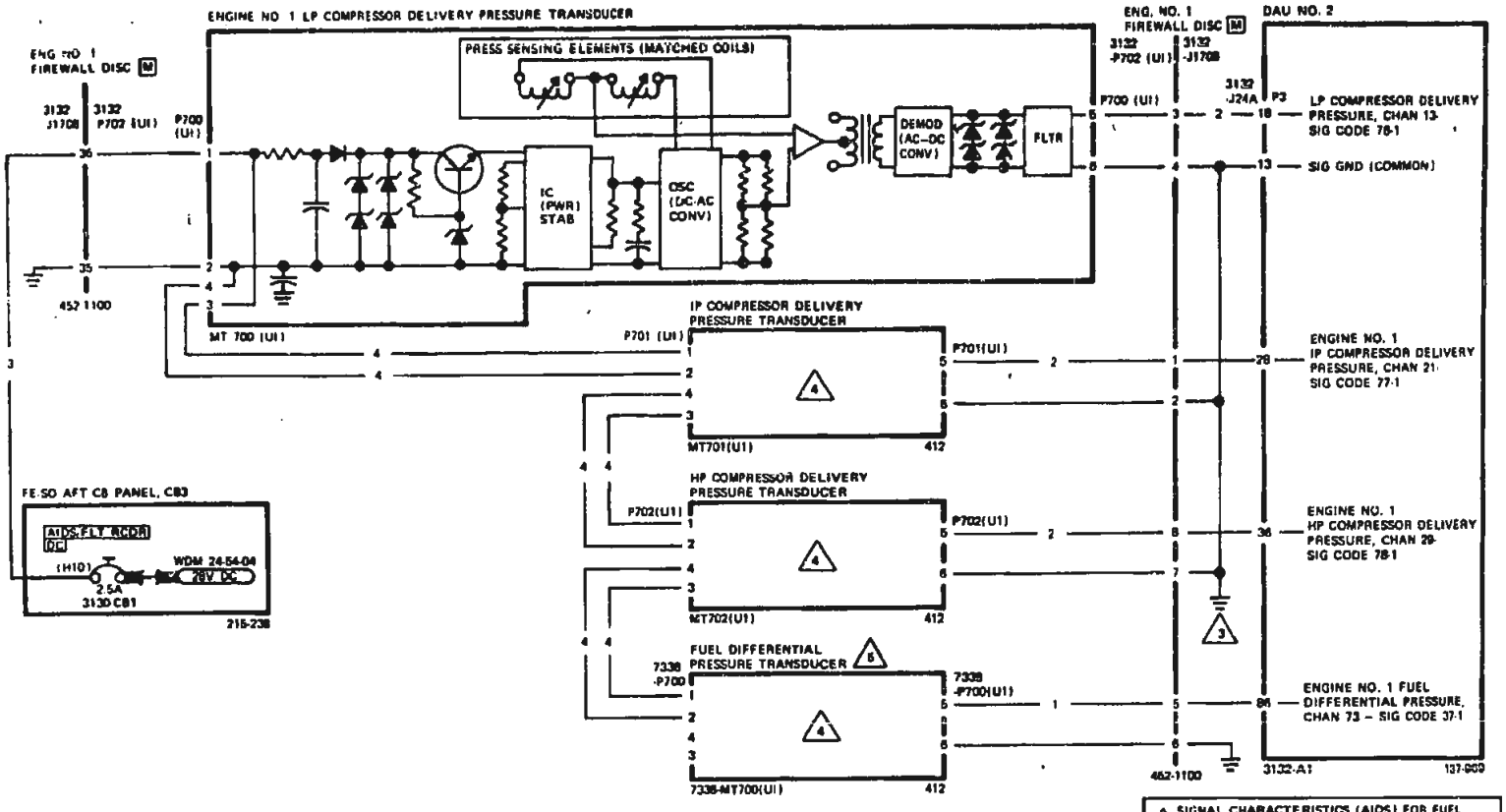
WDM DIA CROSS REF		
CODE	WIRING DIA	SH
1	31-32-12	1

EM1-0001-31-000

R Engine Throttle Lever Angle Position Monitoring Schematic
R SCHEM 14

EFFECTIVITY: ALL

001B



NOTE

1. NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.
2. ALL REF. DESIGNATIONS PREFIXED WITH 7542 UNLESS OTHERWISE SPECIFIED
3. COMMON SIGNAL GROUND FOR SIGNAL CODES 76-1, 77-1 AND 78-1
4. INTERNAL CIRCUITRY SAME AS SHOWN FOR LP COMPRESSOR DELIVERY PRESSURE TRANSDUCER
5. FUEL HP DIFF PRESS. XDCR DELETED PER M095789

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31-32-12	2
2	31-32-13	8
3	31-32-01	2
4	31-32-01	3

AIDS 563 TESTER THUMBWHEEL ADDRESS

SIG CODE	ADDRESS
37-1	050
76-1	051
77-1	052
78-1	054

SIG RECORDING SEQ

SIG CODE	SEQ
37-1	30
76-1	22
77-1	23
78-1	25

SIGNAL CHARACTERISTICS (AIDS) FOR LP COMPRESSOR DELIVERY PRESSURE TRANSDUCER, SIGNAL CODE 76-1

INPUT RANGE	PARAMETER (PSIA)	ACCURACY (%)	SIG COND INPUT (VDC)	SIG COND DIGITS
0	0	±1%	0.00	000
1	3		0.50	100
2	6		1.00	200
3	9		1.50	300
4	12		2.00	400
5	15		2.50	500
6	18		3.00	600
7	21		3.50	700
8	24		4.00	800
9	27		4.50	900
10	30	±1%	5.00	999

NOTE 1 CALIBRATION POINT 20 PSIA AT +20° C
2 ACCURACY ±1% AT 20 ±25° C

SIGNAL CHARACTERISTICS (AIDS) FOR IP COMPRESSOR DELIVERY PRESSURE TRANSDUCER, SIGNAL CODE 77-1

INPUT RANGE	PARAMETER (PSIA)	ACCURACY (%)	SIG COND INPUT (VDC)	SIG COND DIGITS
0	0.0	±1%	0.00	000
1	12.5		0.50	100
2	25.0		1.00	200
3	37.5		1.50	300
4	50.0		2.00	400
5	62.5		2.50	500
6	75.0		3.00	600
7	87.5		3.50	700
8	100.0		4.00	800
9	112.5		4.50	900
10	125.0	±1%	5.00	999

NOTE 1 CALIBRATION POINT 80 PSIA AT +20° C
2 ACCURACY ±1% AT 20 ±25° C

SIGNAL CHARACTERISTICS (AIDS) FOR HP COMPRESSOR DELIVERY PRESSURE TRANSDUCER, SIGNAL CODE 78-1

INPUT RANGE	PARAMETER (PSIA)	ACCURACY (%)	SIG COND INPUT (VDC)	SIG COND DIGITS
0	0	±1%	0.00	000
1	40		0.50	100
2	80		1.00	200
3	120		1.50	300
4	160		2.00	400
5	200		2.50	500
6	240		3.00	600
7	280		3.50	700
8	320		4.00	800
9	360		4.50	900
10	400	±1%	5.00	999

NOTE 1 CALIBRATION POINT 300 PSI WITH UNIT TEMPERATURE AT + 20° C
2 ACCURACY ±1% AT 20° ±25° C

5 SIGNAL CHARACTERISTICS (AIDS) FOR FUEL DIFFERENTIAL PRESSURE TRANSDUCER, SIGNAL CODE 37-1

INPUT RANGE	PARAMETER (PSI)	ACCURACY (%)	SIG COND INPUT (VDC)	SIG COND DIGITS
0	0	±1%	0.00	000
1	32		0.50	100
2	64		1.00	200
3	96		1.50	300
4	128		2.00	400
5	160		2.50	500
6	192		3.00	600
7	224		3.50	700
8	256		4.00	800
9	288		4.50	900
10	320	±1%	5.00	999

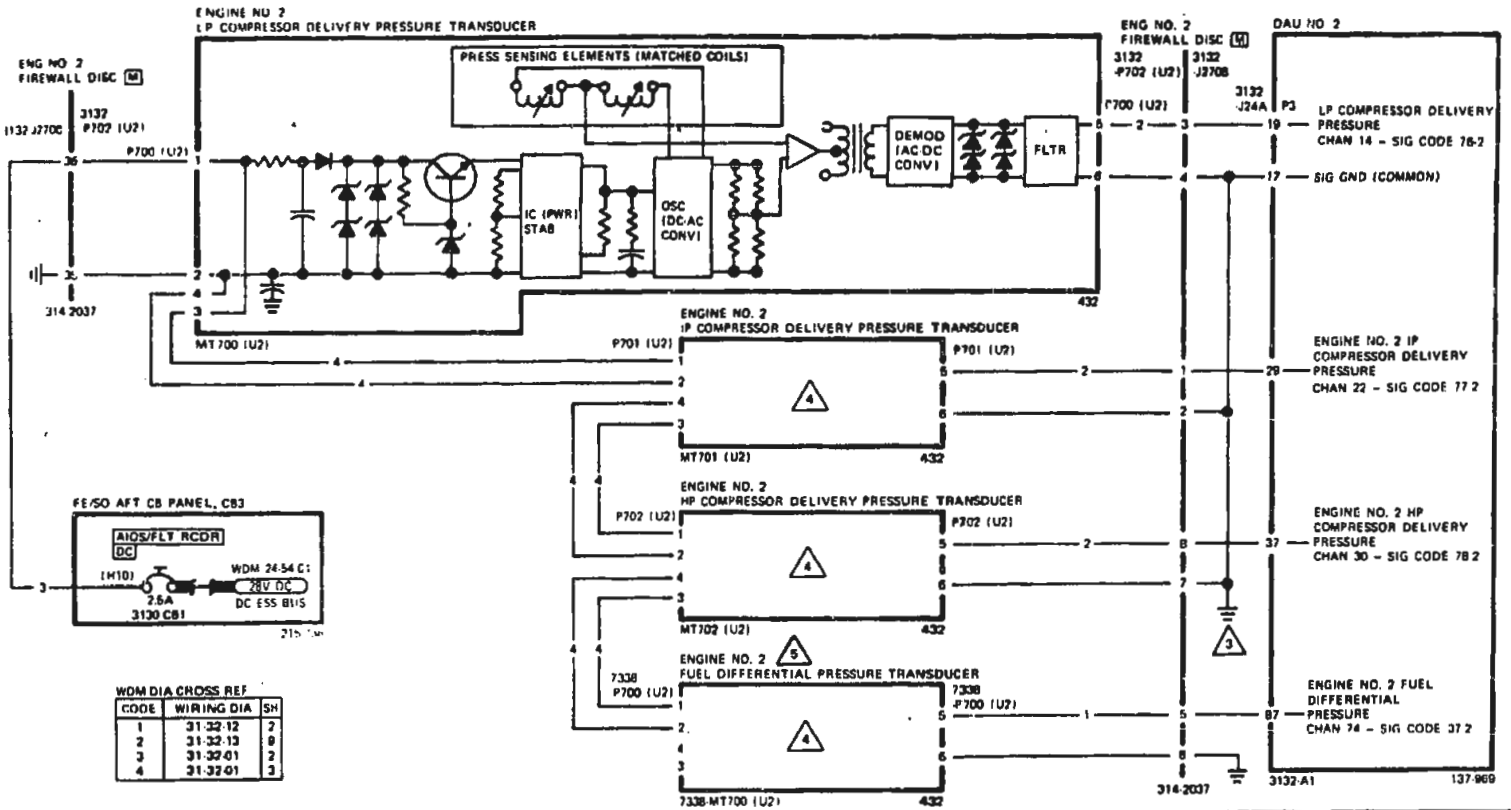
NOTE 1 CALIBRATION POINT 200 PSI DIFFERENTIAL WITH UNIT TEMPERATURE AT + 20° C
2 ACCURACY ±1% AT 20 ±25° C

EM1-0002-31-827

CR Engine Fuel Differential Pressure and LP, IP, and
CR HP Compressor Delivery Pressure Monitoring Schematic
CR SCHEM 15 (Sheet 1)

EFFECTIVITY: ALL

001B



WDM DIA CROSS REF		
CODE	WIRING DIA	SH
1	31-32-12	2
2	31-32-13	9
3	31-32-01	2
4	31-32-01	3

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
37-2	086
76-2	078
77-2	079
78-2	081

SIG RECORDING SEQ	
SIG CODE	SEQ
37-2	57
76-2	48
77-2	50
78-2	52

NOTE

1 ⟵4⟶4 = NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 . ALL REF DESIGNATIONS PREFIXED WITH 7542 UNLESS OTHERWISE SPECIFIED

3 COMMON SIGNAL GROUND FOR SIGNAL CODES 76-2, 77-2, AND 78-2

4 INTERNAL CIRCUITRY SAME AS SHOWN FOR LP COMPRESSOR DELIVERY PRESSURE TRANSDUCER

5 FUEL HP DIFF PRESS. XDCR DELETED PER MOD5769

SIGNAL CHARACTERISTICS (AIDS) FOR LP COMPRESSOR DELIVERY PRESSURE TRANSDUCER, SIGNAL CODE 76-2				
INPUT RANGE	PARAMETER (PSIA)	ACCURACY (%)	SIG COND INPUT (VDC)	SIG COND DIGITS
0	0	±1%	0.00	000
1	3		0.50	100
2	6		1.00	200
3	9		1.50	300
4	12		2.00	400
5	15		2.50	500
6	18		3.00	600
7	21		3.50	700
8	24		4.00	800
9	27		4.50	900
10	30	±1%	5.00	999

NOTE 1 CALIBRATION POINT 20 PSIA AT +20°C
2 ACCURACY ±1% AT 20 ±25°C

SIGNAL CHARACTERISTICS (AIDS) FOR IP COMPRESSOR DELIVERY PRESSURE TRANSDUCER, SIGNAL CODE 77-2				
INPUT RANGE	PARAMETER (PSIA)	ACCURACY (%)	SIG COND INPUT (VDC)	SIG COND DIGITS
0	0.0	±1%	0.00	000
1	12.5		0.50	100
2	25.0		1.00	200
3	37.5		1.50	300
4	50.0		2.00	400
5	62.5		2.50	500
6	75.0		3.00	600
7	87.5		3.50	700
8	100.0		4.00	800
9	112.5		4.50	900
10	125.0	±1%	5.00	999

NOTE 1 CALIBRATION POINT 80 PSIA AT +20°C
2 ACCURACY ±1% AT 20 ±25°C

5 SIGNAL CHARACTERISTICS (AIDS) FOR FUEL DIFFERENTIAL PRESSURE TRANSDUCER, SIGNAL CODE 37-2				
INPUT RANGE	PARAMETER (PSI)	ACCURACY (%)	SIG COND INPUT (VDC)	SIG COND DIGITS
0	0	±1%	0.00	000
1	32		0.50	100
2	64		1.00	200
3	96		1.50	300
4	128		2.00	400
5	160		2.50	500
6	192		3.00	600
7	224		3.50	700
8	256		4.00	800
9	288		4.50	900
10	320	±1%	5.00	999

NOTE 1 CALIBRATION POINT 200 PSI DIFFERENTIAL WITH UNIT TEMPERATURE AT +20°C
2 ACCURACY ±1% AT 20 ±25°C

SIGNAL CHARACTERISTICS (AIDS) FOR HP COMPRESSOR DELIVERY PRESSURE TRANSDUCER, SIGNAL CODE 78-2				
INPUT RANGE	PARAMETER (PSIA)	ACCURACY (%)	SIG COND INPUT (VDC)	SIG COND DIGITS
0	0	±1%	0.00	000
1	40		0.50	100
2	80		1.00	200
3	120		1.50	300
4	160		2.00	400
5	200		2.50	500
6	240		3.00	600
7	280		3.50	700
8	320		4.00	800
9	360		4.50	900
10	400	±1%	5.00	999

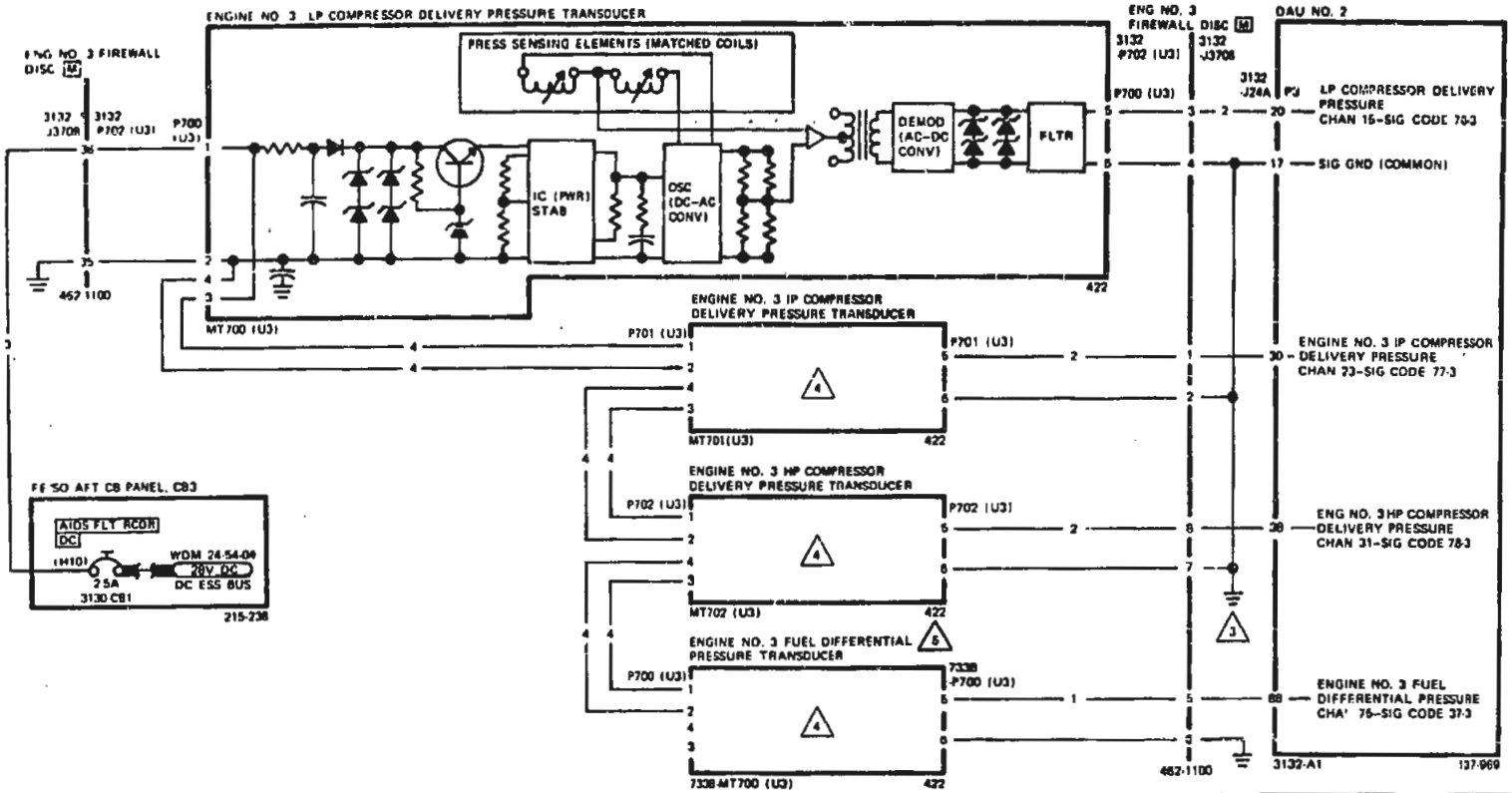
NOTE 1 CALIBRATION POINT 300 PSI WITH UNIT TEMPERATURE AT +20°C
2 ACCURACY ±1% AT 20 ±25°C

EM1-0002-31-828

CR Engine Fuel Differential Pressure and LP, IP, and
CR HP Compressor Delivery Pressure Monitoring Schematic
CR SCHEM 15 (Sheet 2)

EFFECTIVITY: ALL

001B


ENGINE NO. 3 LP COMPRESSOR DELIVERY PRESSURE TRANSDUCER
PRESS SENSING ELEMENTS (MATCHED COILS)
DEMOD (AC-DC CONV)
FLTR
IC (PWR) STAB
OSC (DC-AC CONV)
ENG NO. 3 FIREWALL DISC M
DAU NO. 2
LP COMPRESSOR DELIVERY PRESSURE CHAN 15-SIG CODE 78-3
SIG GND (COMMON)
ENGINE NO. 3 IP COMPRESSOR DELIVERY PRESSURE TRANSDUCER
ENGINE NO. 3 IP COMPRESSOR DELIVERY PRESSURE CHAN 23-SIG CODE 77-3
ENGINE NO. 3 HP COMPRESSOR DELIVERY PRESSURE TRANSDUCER
ENG NO. 3 HP COMPRESSOR DELIVERY PRESSURE CHAN 31-SIG CODE 78-3
ENGINE NO. 3 FUEL DIFFERENTIAL PRESSURE TRANSDUCER
ENGINE NO. 3 FUEL DIFFERENTIAL PRESSURE CHA' 75-SIG CODE 37-3
FE SO AFT CB PANEL, CB3
AIDS FLT RCDR
WDM 24-54-09
28V DC
DC ESS BUS
25A
3130 CB1
215-238
462-1100
422
3132-A1
137-969

NOTE

1 ⟵4⟶ = NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATIONS PREFIXED WITH 7542 UNLESS OTHERWISE SPECIFIED

3 COMMON SIGNAL GROUND FOR SIGNAL CODES 76-2, 77-2, AND 78-2

4 INTERNAL CIRCUITRY SAME AS SHOWN FOR LP COMPRESSOR DELIVERY PRESSURE TRANSDUCER

5 FUEL HP DIFF PRESS. XDCR DELETED PER MO85769

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31-12-12	2
2	31-32-13	8
3	31-32-01	2
4	31-32-01	3

AIDS 563 TESTER THUMBWHEEL ADDRESS

SIG CODE	ADDRESS
37-3	113
76-3	105
77-3	106
78-3	108

SIG RECORDING SEQ

SIG CODE NO.	SEQ
37-3	84
76-3	76
77-3	77
78-3	79

SIGNAL CHARACTERISTICS (AIDS) FOR LP COMPRESSOR DELIVERY PRESSURE TRANSDUCER, SIGNAL CODE 78-3

INPUT RANGE	PARAMETER (PSIA)	ACCURACY (%)	SIG COND INPUT (VDC)	SIG COND DIGITS
0	0	±1%	0.00	000
1	3		0.50	100
2	6		1.00	200
3	9		1.50	300
4	12		2.00	400
5	15		2.50	500
6	18		3.00	600
7	21		3.50	700
8	24		4.00	800
9	27		4.50	900
10	30	±1%	5.00	999

NOTE 1 CALIBRATION POINT 20 PSIA AT +20°C
2 ACCURACY ±1% AT 20 ±25°C

SIGNAL CHARACTERISTICS (AIDS) FOR IP COMPRESSOR DELIVERY PRESSURE TRANSDUCER, SIGNAL CODE 77-3

INPUT RANGE	PARAMETER (PSIA)	ACCURACY (%)	SIG COND INPUT (VDC)	SIG COND DIGITS
0	0.0	±1%	0.00	000
1	12.5		0.50	100
2	25.0		1.00	200
3	37.5		1.50	300
4	50.0		2.00	400
5	62.5		2.50	500
6	75.0		3.00	600
7	87.5		3.50	700
8	100.0		4.00	800
9	112.5		4.50	900
10	125.0	±1%	5.00	999

NOTE 1 CALIBRATION POINT 80 PSIA AT +20°C
2 ACCURACY ±1% AT 20 ±25°C

SIGNAL CHARACTERISTICS (AIDS) FOR HP COMPRESSOR DELIVERY PRESSURE TRANSDUCER, SIGNAL CODE 78-3

INPUT RANGE	PARAMETER (PSIA)	ACCURACY (%)	SIG COND INPUT (VDC)	SIG COND DIGITS
0	0	±1%	0.00	000
1	40		0.50	100
2	80		1.00	200
3	120		1.50	300
4	160		2.00	400
5	200		2.50	500
6	240		3.00	600
7	280		3.50	700
8	320		4.00	800
9	360		4.50	900
10	400	±1%	5.00	999

NOTE 1 CALIBRATION POINT 300 PSI WITH UNIT TEMPERATURE AT +20°C
2 ACCURACY ±1% AT 20 ±25°C

5 SIGNAL CHARACTERISTICS (AIDS) FOR FUEL DIFFERENTIAL PRESSURE TRANSDUCER, SIGNAL CODE 37-3

INPUT RANGE	PARAMETER (PSI)	ACCURACY (%)	SIG COND INPUT (VDC)	SIG COND DIGITS
0	0	±1%	0.00	000
1	32		0.50	100
2	64		1.00	200
3	96		1.50	300
4	128		2.00	400
5	160		2.50	500
6	192		3.00	600
7	224		3.50	700
8	256		4.00	800
9	288		4.50	900
10	320	±1%	5.00	999

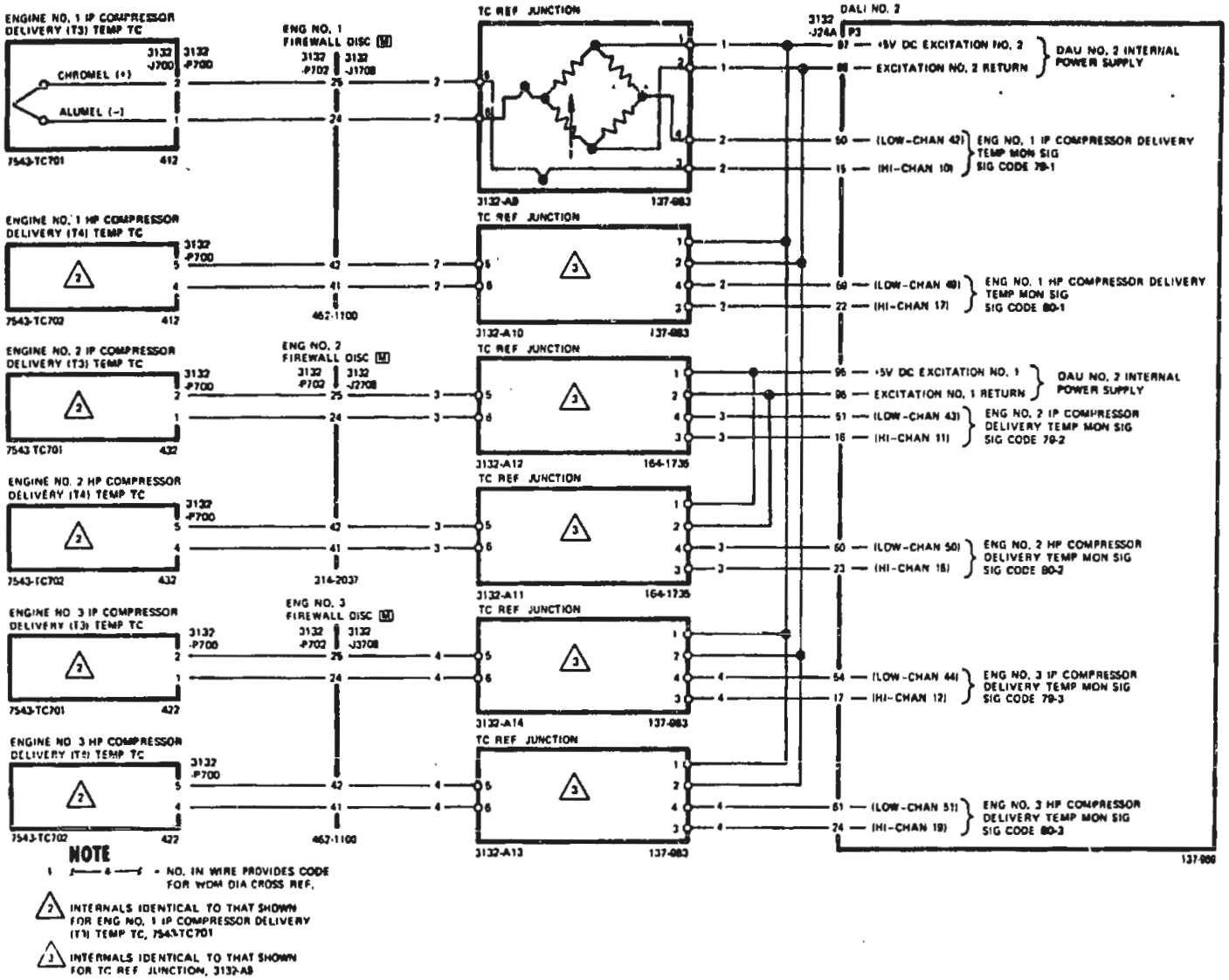
NOTE. 1 CALIBRATION POINT 200 PSI DIFFERENTIAL WITH UNIT TEMPERATURE AT +20°C
2 ACCURACY ±1% AT 20 ±25°C

EM1-0002-31-829

CR Engine Fuel Differential Pressure and LP, IP, and
CR HP Compressor Delivery Pressure Monitoring Schematic
CR SCHEM 15 (Sheet 3)

EFFECTIVITY: ALL

0018


ENGINE NO. 1 IP COMPRESSOR DELIVERY (T3) TEMP TC
CHROMEL (+)
ALUMEL (-)
7543-TC701
412
ENGINE NO. 1 HP COMPRESSOR DELIVERY (T4) TEMP TC
7543-TC702
412
ENGINE NO. 2 IP COMPRESSOR DELIVERY (T3) TEMP TC
7543 TC701
432
ENGINE NO. 2 HP COMPRESSOR DELIVERY (T4) TEMP TC
7543-TC702
432
ENGINE NO 3 IP COMPRESSOR DELIVERY (T3) TEMP TC
7543-TC701
422
ENGINE NO 3 HP COMPRESSOR DELIVERY (T4) TEMP TC
7543-TC702
422
ENG NO. 1 FIREWALL DISC M
ENG NO. 2 FIREWALL DISC M
ENG NO. 3 FIREWALL DISC M
462-1100
314-2037
TC REF JUNCTION
3132-A9
137-883
3132-A10
137-883
3132-A12
164-1735
3132-A11
164-1735
3132-A14
137-883
3132-A13
137-883
DAU NO. 2
3132 -J24A P3
+5V DC EXCITATION NO. 2
EXCITATION NO. 2 RETURN
DAU NO. 2 INTERNAL POWER SUPPLY
(LOW-CHAN 42) ENG NO. 1 IP COMPRESSOR DELIVERY TEMP MON SIG SIG CODE 79-1
(HI-CHAN 10)
(LOW-CHAN 49) ENG NO. 1 HP COMPRESSOR DELIVERY TEMP MON SIG SIG CODE 80-1
(HI-CHAN 17)
+5V DC EXCITATION NO. 1
EXCITATION NO. 1 RETURN
DAU NO. 2 INTERNAL POWER SUPPLY
(LOW-CHAN 43) ENG NO. 2 IP COMPRESSOR DELIVERY TEMP MON SIG SIG CODE 79-2
(HI-CHAN 11)
(LOW-CHAN 50) ENG NO. 2 HP COMPRESSOR DELIVERY TEMP MON SIG SIG CODE 80-2
(HI-CHAN 18)
(LOW-CHAN 44) ENG NO. 3 IP COMPRESSOR DELIVERY TEMP MON SIG SIG CODE 79-3
(HI-CHAN 12)
(LOW-CHAN 51) ENG NO. 3 HP COMPRESSOR DELIVERY TEMP MON SIG SIG CODE 80-3
(HI-CHAN 19)
137-886

NOTE

1 ⌐— 6 —¬ = NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 INTERNALS IDENTICAL TO THAT SHOWN FOR ENG NO. 1 IP COMPRESSOR DELIVERY (T3) TEMP TC, 7543-TC701

3 INTERNALS IDENTICAL TO THAT SHOWN FOR TC REF JUNCTION, 3132-A9

IP COMPRESSOR DELIVERY TEMPERATURE TC SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (DEG C)	SIG COND	
		INPUT MVDC	DIGITS
0	57	2.31	067
1	75	3.05	088
2	93	3.81	111
3	111	4.56	131
4	129	5.29	154
5	147	6.01	175
6	165	6.73	196
7	183	7.45	217
8	201	8.17	238
9	219	8.90	260
10	237	9.63	280

NOTE

1 INPUT MVDC VALUES LISTED IN CH-AL THERMOCOUPLE REF TABLES, NBS CIRCULAR 561

2 NOMINAL CALIBRATION POINT IS 232±4 DEG C (9.42 MVDC NOMINAL)

HP COMPRESSOR DELIVERY TEMPERATURE TC SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (DEG C)	SIG COND	
		INPUT MVDC	DIGITS
0	185.0	7.53	219
1	217.9	8.86	258
2	250.8	10.20	297
3	283.7	11.55	336
4	316.6	12.92	376
5	349.5	14.29	416
6	382.4	15.64	456
7	415.3	17.03	496
8	448.2	18.43	537
9	481.1	19.84	578
10	514.0	21.24	619

NOTE

1 INPUT MVDC VALUES LISTED IN CH-AL THERMOCOUPLE REF. TABLES, NBS CIRCULAR 561

2 NOMINAL CALIBRATION POINT IS 419.4 (±1%) DEG C (17.22 MVDC NOMINAL)

SIG RECORDING SEQUENCE

SIG CODE	SEQUENCE
79-1	24
79-2	51
79-3	78
80-1	26
80-2	53
80-3	80

AIDS 503 TESTER THUMBWHEEL ADDRESS

SIG CODE	ADDRESS
79-1	053
79-2	080
79-3	107
80-1	055
80-2	082
80-3	109

WDM DIA CROSS REF.

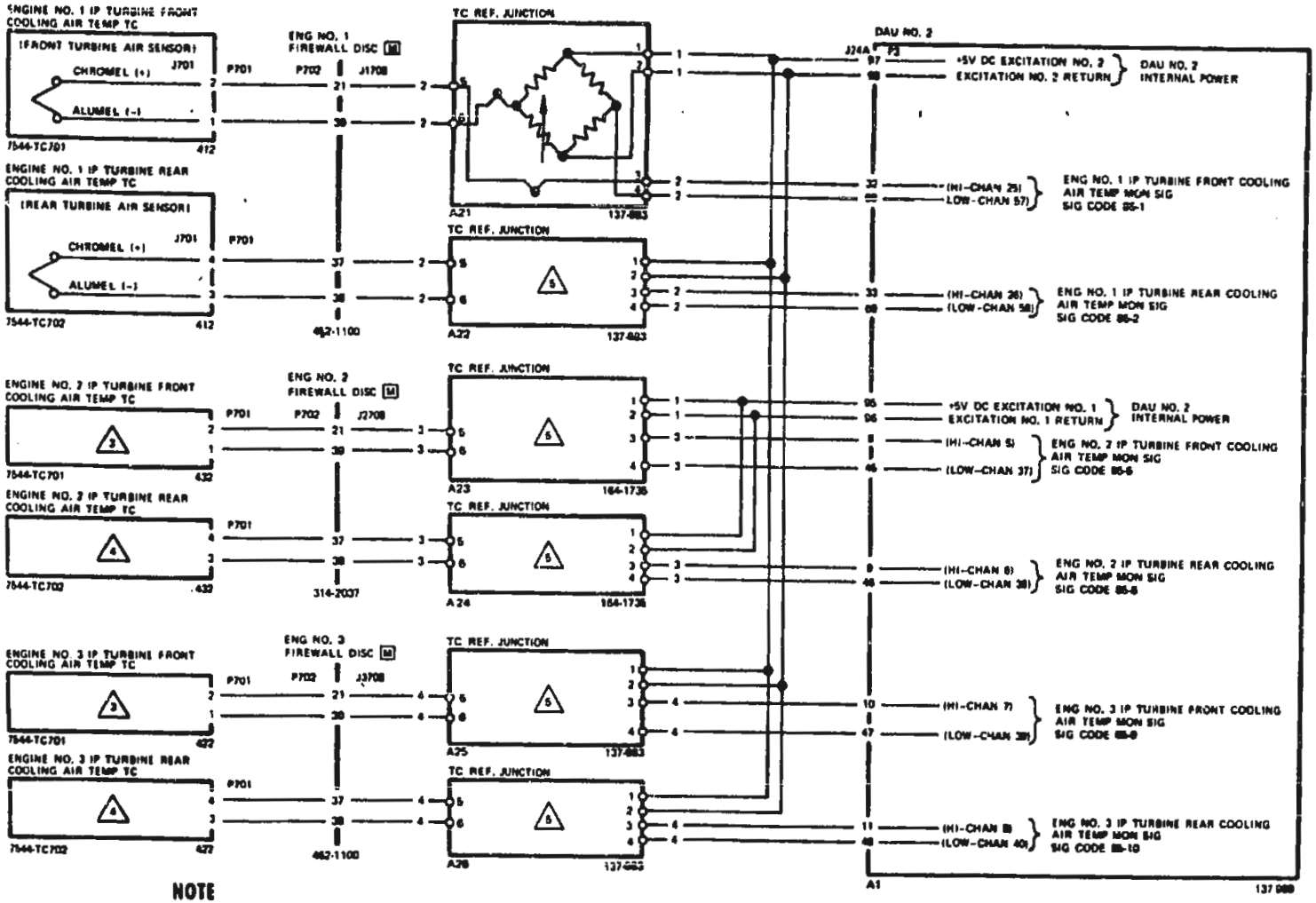
CODE	WIRING DIA	SM
1	31-32-03	2
2	31-32-13	2
3	31-32-13	4
4	31-32-13	6

EM1-0003-31-881

R R R Engine IP and HP Compressor Delivery Temperature Monitoring Schematic SCHEM 16

EFFECTIVITY: ALL

001B


ENGINE NO. 1 IP TURBINE FRONT COOLING AIR TEMP TC
(FRONT TURBINE AIR SENSOR)
CHROMEL (+)
ALUMEL (-)
7544-TC701
ENGINE NO. 1 IP TURBINE REAR COOLING AIR TEMP TC
(REAR TURBINE AIR SENSOR)
7544-TC702
ENG NO. 1 FIREWALL DISC
TC REF. JUNCTION
A21
A22
ENGINE NO. 2 IP TURBINE FRONT COOLING AIR TEMP TC
ENGINE NO. 2 IP TURBINE REAR COOLING AIR TEMP TC
ENG NO. 2 FIREWALL DISC
A23
A24
ENGINE NO. 3 IP TURBINE FRONT COOLING AIR TEMP TC
ENGINE NO. 3 IP TURBINE REAR COOLING AIR TEMP TC
ENG NO. 3 FIREWALL DISC
A25
A26
DAU NO. 2
A1
+5V DC EXCITATION NO. 2
EXCITATION NO. 2 RETURN
DAU NO. 2 INTERNAL POWER
(HI-CHAN 25)
(LOW-CHAN 57)
ENG NO. 1 IP TURBINE FRONT COOLING AIR TEMP MON SIG SIG CODE 85-1
(HI-CHAN 26)
(LOW-CHAN 58)
ENG NO. 1 IP TURBINE REAR COOLING AIR TEMP MON SIG SIG CODE 85-2
+5V DC EXCITATION NO. 1
EXCITATION NO. 1 RETURN
DAU NO. 2 INTERNAL POWER
(HI-CHAN 5)
(LOW-CHAN 37)
ENG NO. 2 IP TURBINE FRONT COOLING AIR TEMP MON SIG SIG CODE 85-5
(HI-CHAN 6)
(LOW-CHAN 38)
ENG NO. 2 IP TURBINE REAR COOLING AIR TEMP MON SIG SIG CODE 85-6
(HI-CHAN 7)
(LOW-CHAN 39)
ENG NO. 3 IP TURBINE FRONT COOLING AIR TEMP MON SIG SIG CODE 85-9
(HI-CHAN 8)
(LOW-CHAN 40)
ENG NO. 3 IP TURBINE REAR COOLING AIR TEMP MON SIG SIG CODE 85-10

SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (DEG C)	ACCURACY (%)	SIG COND	
			INPUT MVDC	DIGITS
0	200	±1	8.13	182
1	290		11.80	236
2	380		15.55	311
3	470		19.36	387
4	560		23.20	464
5	650		27.03	541
6	740		30.81	617
7	830		34.53	691
8	920		38.16	763
9	1010		41.70	834
10	1100	±1	46.18	903

NOTE
1 MILLIVOLT LISTING FROM CHROMEL-ALUMEL TC REF. TABLES, NBS CIRCULAR 561
2 NOMINAL CALIBRATION POINT IS 660 DEG C

SIG RECORDING SEQ	
SIG CODE	SEQ
85-1	27
85-2	28
85-5	54
85-6	55
85-9	81
85-10	82

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
85-1	056
85-2	057
85-5	083
85-6	084
85-9	110
85-10	111

WDM DIA CROSS REF.		
CODE	WIRING DIA	SH
1	31-32-02	2
2	31-32-13	2
3	31-32-13	4
4	31-32-13	6

NOTE

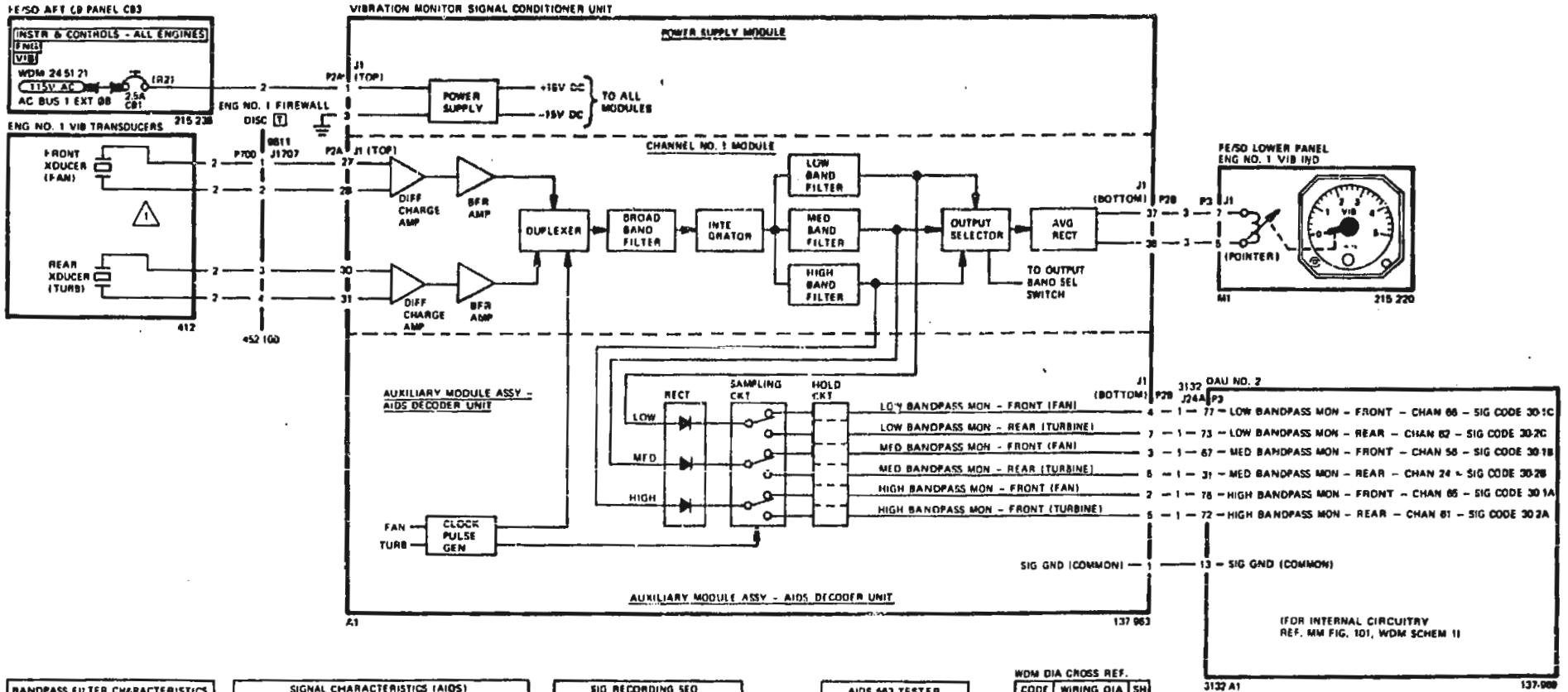
1 ⟵6⟶ = NO IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.
2 ALL REF DESIGNATIONS PREFIXED WITH 3132 UNLESS OTHERWISE SPECIFIED
3 INTERNALS IDENTICAL TO THAT SHOWN FOR ENGINE NO 1 IP TURBINE FRONT COOLING AIR TEMP TC, 7544-TC701
4 INTERNALS IDENTICAL TO THAT SHOWN FOR ENGINE NO. 1 IP TURBINE REAR COOLING AIR TEMP TC, 7544-TC702
5 INTERNALS IDENTICAL TO THAT SHOWN FOR TC REF. JUNCTION A21

EM81-0002-31-082

R
R
R
Engine IP Turbine Front and Rear Cooling Air Temperature Monitoring Schematic
SCHEM 17

EFFECTIVITY: ALL

0018


FE/SO AFT CB PANEL CB3
INSTR & CONTROLS - ALL ENGINES
ENG
VIB
WDM 24 51 21
115V AC
AC BUS 1 EXT PB
2.5A CBT
(R2)
215 238
ENG NO. 1 VIB TRANSDUCERS
FRONT XDUCER (FAN)
REAR XDUCER (TURB)
412
452 100
ENG NO. 1 FIREWALL DISC
VIBRATION MONITOR SIGNAL CONDITIONER UNIT
POWER SUPPLY MODULE
POWER SUPPLY
+15V DC
-15V DC
TO ALL MODULES
CHANNEL NO. 1 MODULE
DIFF CHARGE AMP
BFR AMP
DUPLEXER
BROAD BAND FILTER
INTE GRATOR
LOW BAND FILTER
MED BAND FILTER
HIGH BAND FILTER
OUTPUT SELECTOR
AVG RECT
TO OUTPUT BAND SEL SWITCH
AUXILIARY MODULE ASSY - AIDS DECODER UNIT
RECT
SAMPLING CKT
HOLD CKT
LOW
MED
HIGH
FAN
TURB
CLOCK PULSE GEN
LOW BANDPASS MON - FRONT (FAN)
LOW BANDPASS MON - REAR (TURBINE)
MED BANDPASS MON - FRONT (FAN)
MED BANDPASS MON - REAR (TURBINE)
HIGH BANDPASS MON - FRONT (FAN)
HIGH BANDPASS MON - FRONT (TURBINE)
SIG GND (COMMON)
A1
137 063
FE/SO LOWER PANEL ENG NO. 1 VIB IND
(POINTER)
M1
215 220
3132 DAU NO. 2
LOW BANDPASS MON - FRONT - CHAN 66 - SIG CODE 30 1C
LOW BANDPASS MON - REAR - CHAN 62 - SIG CODE 30 2C
MED BANDPASS MON - FRONT - CHAN 58 - SIG CODE 30 1B
MED BANDPASS MON - REAR - CHAN 24 - SIG CODE 30 2B
HIGH BANDPASS MON - FRONT - CHAN 65 - SIG CODE 30 1A
HIGH BANDPASS MON - REAR - CHAN 61 - SIG CODE 30 2A
SIG GND (COMMON)
(FOR INTERNAL CIRCUITRY REF. MM FIG. 101, WDM SCHEM 1)
3132 A1
137-000

BANDPASS FILTER CHARACTERISTICS

BANDPASS	db	HZ
LOW	±3/4	42 72
LOW	3	39.2 79
LOW	-12	30 104
MED	±3/4	87 112
MED	-3	79 122
MED	-12	60 150
HIGH	±3/4	150 216
HIGH	-3	138 232
HIGH	-12	104 302

SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER IN/SEC	ACCURACY (± %)	SIG COND INPUT VDC	SIG COND DIGITS
0	0.0	9	0.0	000
1	0.2	9	0.5	100
2	0.4	9	1.0	200
3	0.6	9	1.5	300
4	0.8	9	2.0	400
5	1.0	9	2.5	500
6	1.2	9	3.0	600
7	1.4	9	3.5	700
8	1.6	9	4.0	sub
9	1.8	9	4.5	900
10	2.0	9	5.0	999

SIG RECORDING SEQ

SIG CODE NO	SEQ
30 1A	34
30 1B	35
30 1C	36
30 2A	37
30 2B	38
30 2C	39

AIDS 663 TESTER THUMBWHEEL ADDRESS

SIG CODE	ADDRESS
30 1A	063
30 1B	064
30 1C	065
30 2A	066
30 2B	067
30 2C	068

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31-32-13	13
2	77 31-01	3
3	77 31-01	2

NOTE

1 ⟵4⟶ = NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATIONS PREFIXED WITH 7731 UNLESS OTHERWISE SPECIFIED

3 FAN AND TURB XDUCER SENSOR WIRES ROUTED TO TERMINAL BOARD, THEN TO FIREWALL DISCONNECT

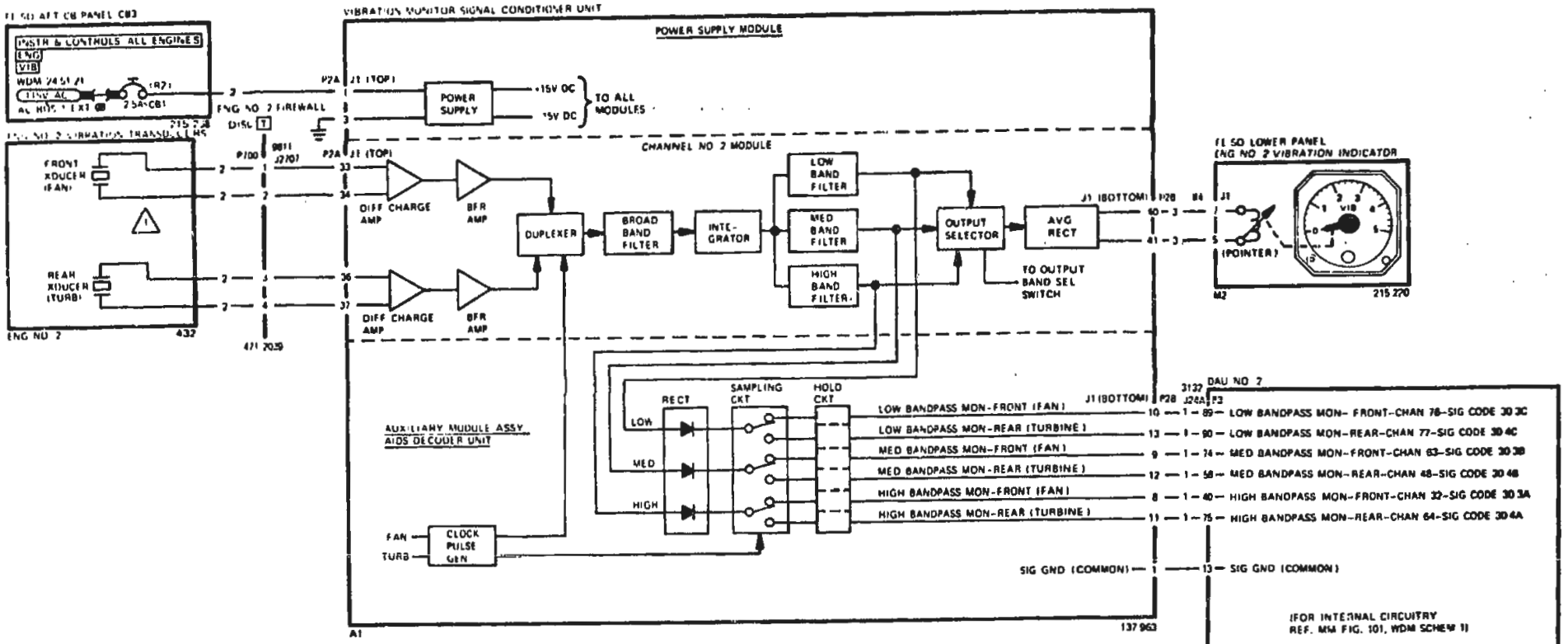
EM1-0002-31-014

R
R

Engine Vibration Monitoring Schematic
SCHEM 18 (Sheet 1)

EFFECTIVITY: ALL

0018



BANDPASS FILTER CHARACTERISTICS		
BANDPASS	dB	HZ
LOW	3	39 279
LOW	12	30 104
MED	3	78 122
MED	12	60 150
HIGH	3	156 232
HIGH	12	104 302

SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER IN SEC	ACCURACY (+ %)	SIG COND	
			INPUT VDC	DIGITS
0	00	9	00	000
1	02	9	05	100
2	04	9	10	200
3	06	9	15	300
4	08	9	20	400
5	10	9	25	500
6	12	9	30	600
7	14	9	35	700
8	16	9	40	800
9	18	9	45	900
10	20	9	50	999

SIG RECORDING SEQ	
SIG CODE NO	SEQ
303A	61
303B	62
303C	63
304A	64
3048	65
304C	66

AIDS 583 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
303A	090
303B	091
303C	092
304A	093
3048	094
304C	095

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	32 32 13	13
2	77 31 01	3
3	77 31 01	2

NOTE

1 ⟩—4—⟨ · NO IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATIONS ARE PREFIXED WITH 7731 UNLESS OTHERWISE SPECIFIED

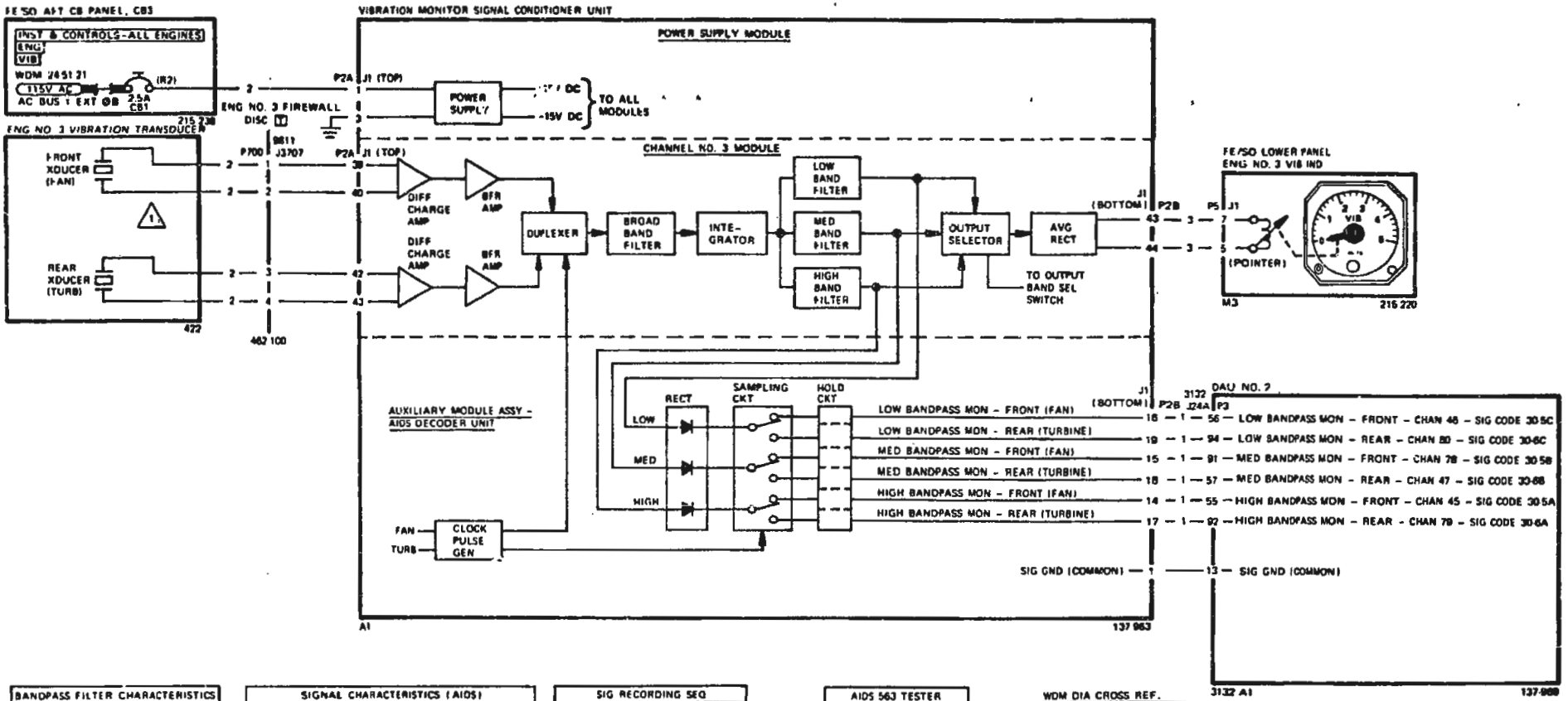
3 FAN AND TURB XDUCER WIRES ROUTED TO TERMINAL BOARD THEN TO FIREWALL DISCONNECT

E81-0002-31-015

R Engine Vibration Monitoring Schematic
R SCHEM 18 (Sheet 2)

EFFECTIVITY: ALL

001B



BANDPASS FILTER CHARACTERISTICS		
BANDPASS	db	HZ
LOW	±3/4	43 72
LOW	-3	39 2 79
LOW	-12	30 104
MED	±3/4	87 112
MED	-3	79 122
MED	-12	60 150
HIGH	±3/4	150 215
HIGH	-3	138 232
HIGH	-12	104 302

SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER IN/SEC	ACCURACY (± %)	SIG COND INPUT VDC	SIG COND DIGITS
0	0.0	9	0.0	000
1	0.2	9	0.5	100
2	0.4	9	1.0	200
3	0.6	9	1.5	300
4	0.8	9	2.0	400
5	1.0	9	2.5	500
6	1.2	9	3.0	600
7	1.4	9	3.5	700
8	1.6	9	4.0	800
9	1.8	9	4.5	900
10	2.0	9	5.0	999

SIG RECORDING SEQ	
SIG CODE NO.	SEQ
30 5A	89
30 5B	88
30 5C	90
30 6A	91
30 6B	92
30 6C	93

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
30 5A	117
30 5B	118
30 5C	119
30 6A	120
30 6B	121
30 6C	122

WDM DIA CROSS REF.		
CODE	WIRING DIA	SH
1	31-32 13	13
2	77-31-01	3
3	77 31-01	2

NOTE

1 ⟵ 4 ⟶ - NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATIONS ARE PREFIXED WITH 7731 UNLESS OTHERWISE SPECIFIED

3 FAN AND TURB XDUCER SENSOR WIRES ROUTED TO TERMINAL BOARD, THEN TO FIREWALL DISCONNECT

EMI-0002-31-818

R
R

Engine Vibration Monitoring Schematic
SCHEM 18 (Sheet 3)

EFFECTIVITY: ALL

001B

R # DATA ACQUISITION UNIT NO. 3 - FAULT ISOLATION

R 1. General

R Reference data and fault isolation procedures for troubleshooting system faults are included in this section of the manual. A system malfunction detected by the flight crew is normally entered in the aircraft flight log book and reported to maintenance personnel by a FIRM fault code number. This number and the flight log book write-up can be found in the Chapter 31 Fault Code Index. The index specifies the maintenance manual section, fault isolation diagram figure number and, where appropriate, a block number indicating the diagram entry point containing the fault isolation procedure. When no block number is specified, the diagram entry point is Block 1.

R Prerequisites listed at the top of each diagram identify mandatory preliminary steps and circuit breakers that must be closed before initiating any fault isolation step.

R Schematic diagrams, identified by a SCHEM number, supplement fault isolation procedures as maintenance aids. The schematics show the basic system circuitry necessary for troubleshooting and include cross-reference indexes to the wiring diagram manual pages required for checking component interconnect wiring.

R 2. Supplemental Data

R Schematics contained in this section are designed to provide the technician with troubleshooting documents that contain adequate information for isolating and confirming a suspected fault in any of the signals routed to data acquisition unit (DAU) No. 3. In the event a schematic in this section contains a group of signals, part of which are routed to DAU No. 1 or No. 2, the affected schematic is also included in the appropriate Section 31-32-10 (DAU No. 1) or 31-32-11 (DAU No. 2).

R Technicians involved with troubleshooting the AIDS system should be familiar with the information in Section 31-32-00 Aircraft Integrated Data System - Fault Isolation. This section includes information on the use of the Model 563 AIDS/DFDR Portable Tester and the tabulated signal data included on each schematic.

R 3. Fault Isolation/Identification

R Table 101 lists the fault isolation diagrams and schematics in this section.

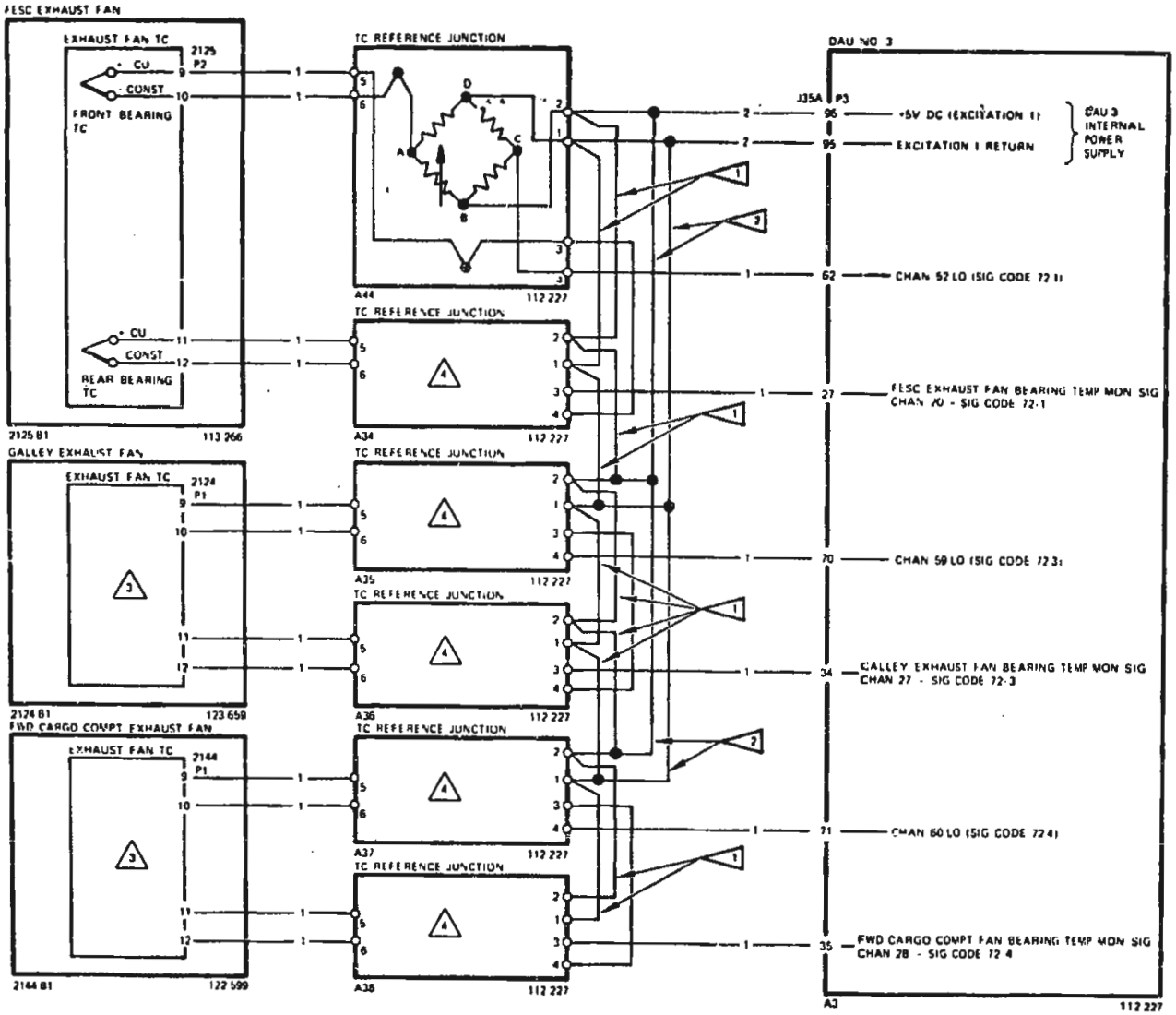
R TABLE 101

R

R FIGURE	TITLE
R 101	Component Location Index
R 102	Component Locator Diagram
R SCHEM 1	FESC Galley, and Forward Cargo Compt Exhaust Fan Bearing Temp Monitoring Schematic
R SCHEM 2	Safety Valve No. 1 (Fwd) and No. 2 (Aft) Position Monitoring Schematic
R SCHEM 3	Pack No. 2 and No. 3 Hot Manifold Temp Control Valve Position Monitoring Schematic
R SCHEM 4	Pack No. 2 and No. 3 Hot Manifold Isolation Valves Position Monitoring Schematic
R SCHEM 5	Pack Water Separator Pressure and Mixing Plenum Chamber Pressure Monitoring Schematic
R SCHEM 6	Zone 1 (Flight Station) Trim Actuator Position Monitoring Schematic
R SCHEM 7	Zone 2 (Forward Cabin) Trim Actuator Position Monitoring Schematic
R SCHEM 8	Zone 3 (Mid Cabin) Trim Actuator Position Monitoring Schematic
R SCHEM 9	Zone 4 (Aft Cabin) Trim Actuator Position Monitoring Schematic
R SCHEM 10	Zone 5 (Galley) Trim Actuator Position Monitoring Schematic
R SCHEM 11	Pack Air Cycle Machine Discharge Temp Monitoring Schematic
R SCHEM 12	Zone Supply Duct Temp Monitoring Schematic
R SCHEM 13	Zone Temperature Monitoring Schematic
R SCHEM 14	Forward, Mid, and Aft Cargo Compt Temp Sensor Monitoring Schematic
R SCHEM 15	Air Cycle Machine Turbine Inlet Temp Monitoring Schematic

R TABLE 101 (Cont)

FIGURE	TITLE
SCHEM 16	Engine Bleed Air Supply Duct Temp Monitoring Schematic
SCHEM 17	Fuel Tank Quantity Monitoring Schematic
SCHEM 18	Hydraulic Systems Pressure Monitoring Schematic
SCHEM 19	Direct Lift Control and Nose Gear Steering Servo Valve Return QFM Monitoring Schematic
SCHEM 20	Engine Low and High Pressure Anti-Ice Switch Monitoring Schematic
SCHEM 21	Radio Altimeter Monitoring Schematic
SCHEM 22	ADC Course and Fine Pressure Altitude Monitoring Schematic
SCHEM 23	ADC Static Air Temperature Monitoring Schematic
SCHEM 24	ADC Computed Airspeed and Mach Number Monitoring Schematic
SCHEM 25	ADC True Airspeed Monitoring Schematic
SCHEM 26	ADC Altitude, SAT/TAS, Airspeed, and Mach Number Monitoring Schematic
SCHEM 27	ILS Receivers Glideslope and Localizer Deviation Monitoring Schematic
SCHEM 28	VOR Localizer Tuned Monitoring Schematic
SCHEM 29	Engine High Pressure Shutoff Valve Monitoring Schematic
SCHEM 30	APU Dust Isolation Valve Position Monitoring Schematic
SCHEM 31	APU Turbine Gas Temperature (TGT) and RPM Monitoring Schematic
SCHEM 32	EPR Indicator - TAT and TAT Flag Monitoring Schematic



SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (DEG F AVG)	SIG COND INPUT MVDC	SIG COND DIGITS
0	32	0.000	000
1	80	2.114	087
2	120	3.974	116
3	160	5.816	172
4	200	7.834	231
5	240	10.028	292
6	280	12.188	358
7	320	14.416	420
8	360	16.704	488
9	400	19.050	554
10	440	21.452	626

SIG RECORDING SEQ	
SIG CODE	SEQ
72 1	181
72 3	183
72 4	184

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	SEQ
72 1	210
72 3	212
72 4	213

WDM DIA CROSS REF

CODE	WIRING DIA	SH
1	31 32 02	4
2	31 32 02	5

NOTE

1 ⟵ 4 ⟶ 1 NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATIONS PRECEDED WITH 3132 UNLESS OTHERWISE SPECIFIED

3 INTERNAL CIRCUITRY IDENTICAL TO THAT SHOWN FOR FESC EXHAUST FAN THERMOCOUPLE

4 INTERNAL CIRCUITRY IDENTICAL TO THAT SHOWN FOR THERMOCOUPLE REFERENCE JUNCTION A33

EFFECTIVITY

1 001 026 WITHOUT SB 31 040

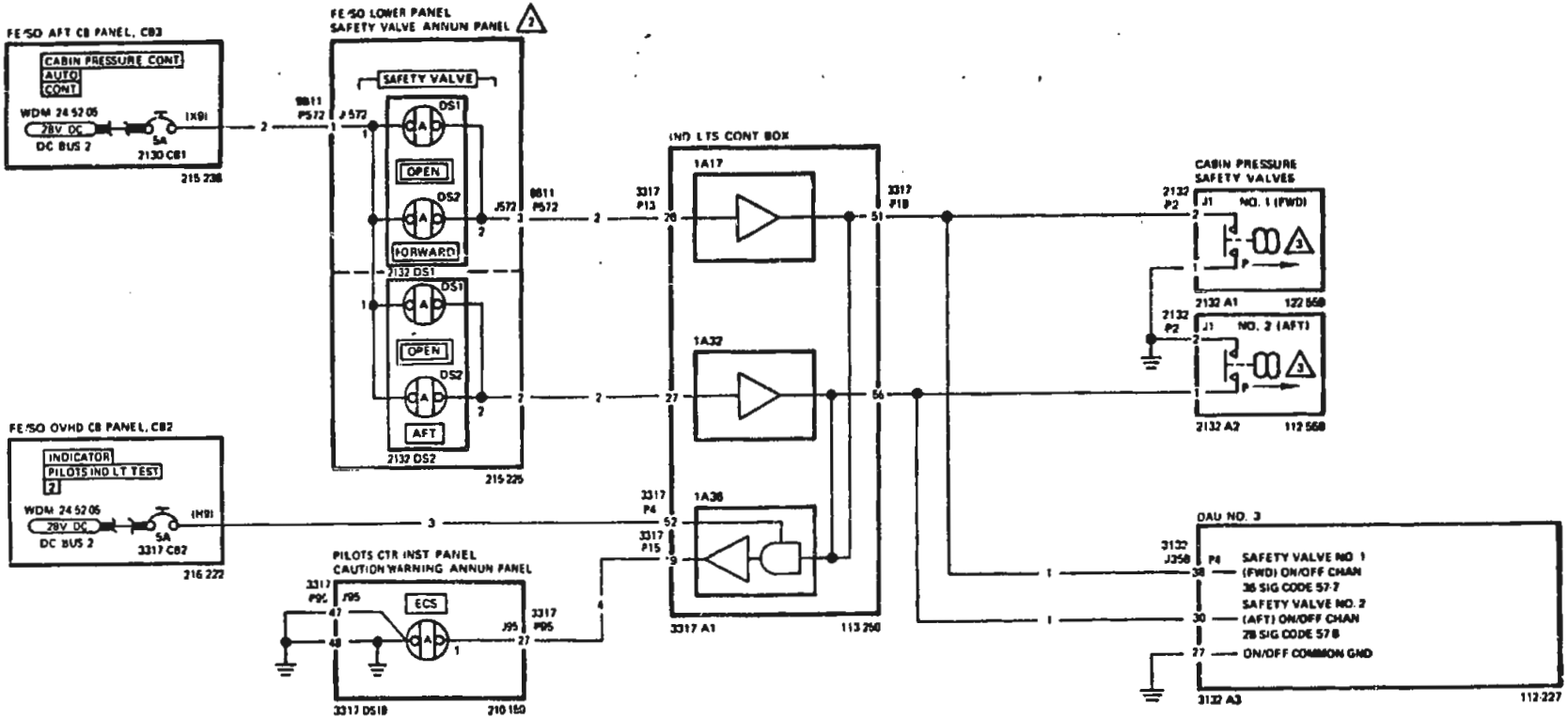
2 001 026 WITH SB 31-040 AND 029 999

EM1-0004-31-841

R FESC, Galley, and Forward Cargo Compt Exhaust Fan Bearing
R Temp Monitoring Schematic
R SCHEM 1

EFFECTIVITY: ALL

0018



SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (VALVE STEM)	SIG COND INPUT VDC	SIG COND DIGITS
0	NOT OPEN	≥ 7	1
10	OPEN	≤ 3	0

SIG RECORDING SEQ	
SIG CODE NO	SEQ
57-7	1514
57-8	1515

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
57-7	180
57-8	180

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31-32-02	9
2	21-32-01	
3	21-44-01	
4	33-17-01	

NOTE

1 ⟵4⟶ - NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 INSTALLED ADJACENT TO ENGINE BLEED CONTROL PANEL

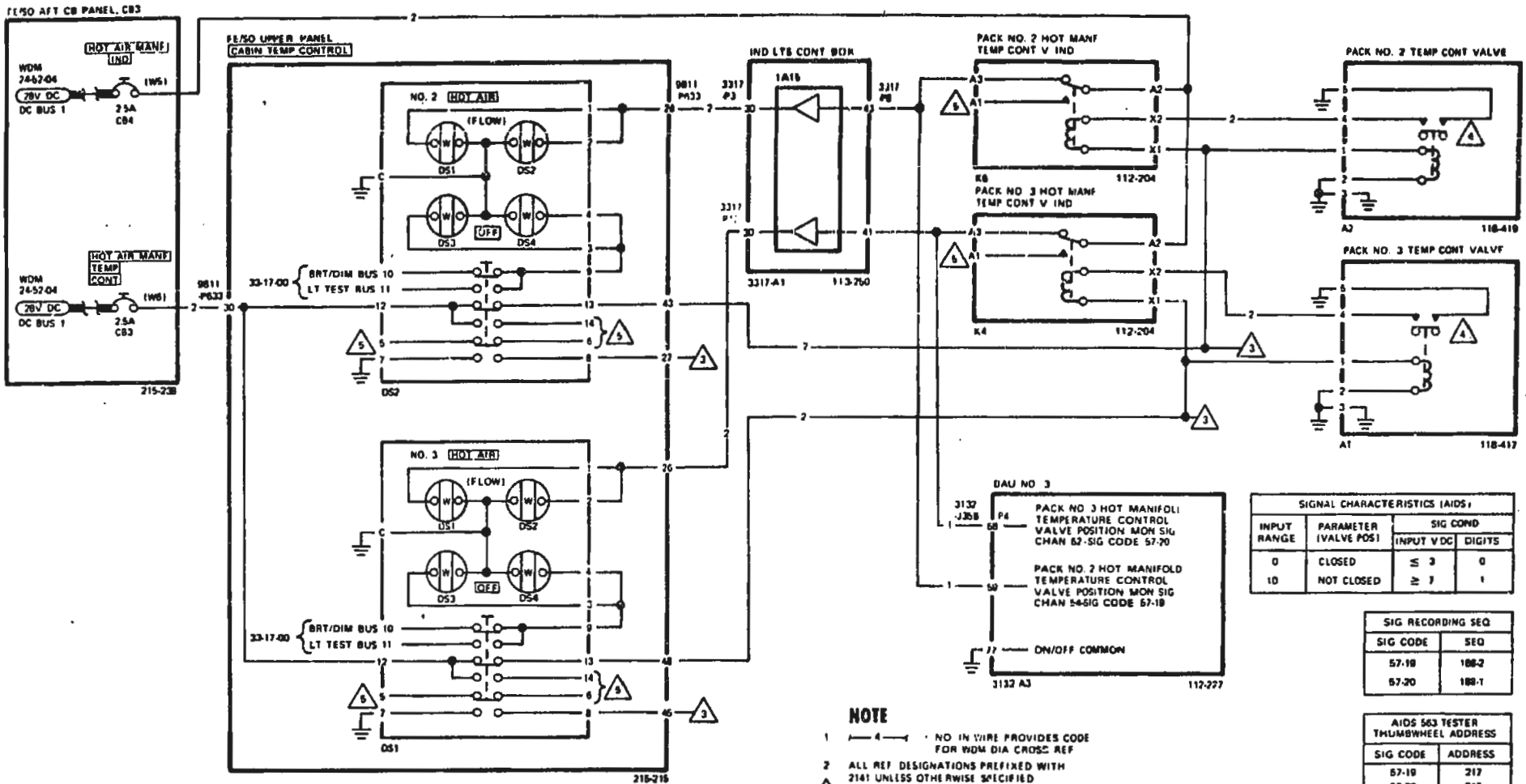
3 POSITIVE PRESSURE VALVES OPEN AT 8.78–8.98 PSID

EM1-0001-31-821

R Safety Valve No. 1 (Fwd) and No. 2 (Aft)
R Position Monitoring Schematic
R SCHEM 2

EFFECTIVITY: ALL

0018



SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (VALVE POS)	SIG COND	
		INPUT V DC	DIGITS
0	CLOSED	≤ 3	0
10	NOT CLOSED	≥ 7	1

SIG RECORDING SEQ	
SIG CODE	SEQ
57-19	188-2
57-20	188-1

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
57-19	217
57-20	217

WDM DIA CROSS REF.		
CODE	WIRING DIA	SH
1	31 32 02	9
2	21 41 02	1

NOTE

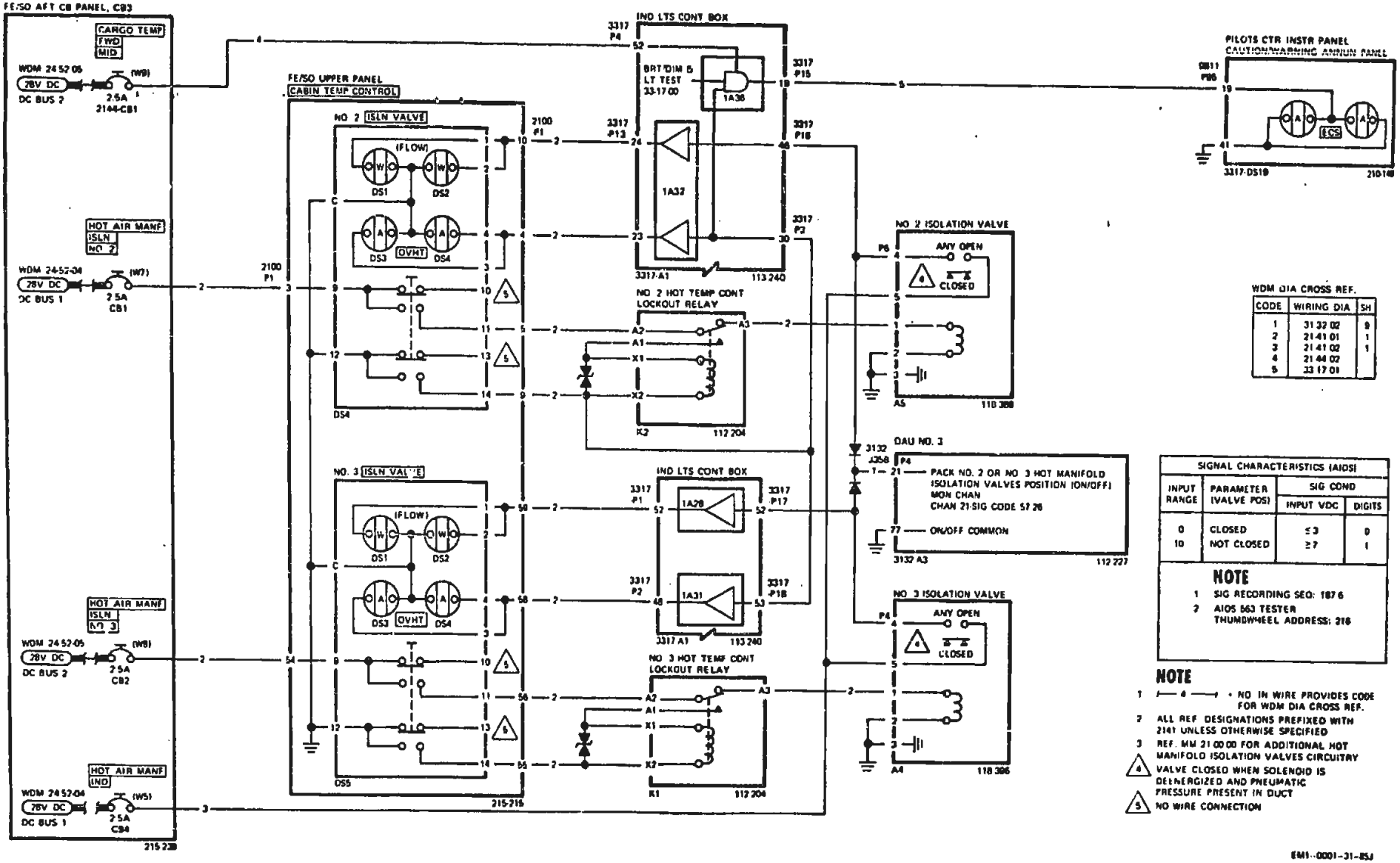
1. NO IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF
2. ALL REF DESIGNATIONS PREFIXED WITH 2141 UNLESS OTHERWISE SPECIFIED
3. FOR ADDITIONAL HOT MANIFOLD TEMPERATURE CONTROL CIRCUITRY, REF MM 21-00-00
4. ENERGIZED SOLENOID CLOSES VALVE VALVE OPENS WHEN SOLENOID IS DEENERGIZED AND PNEUMATIC PRESSURE PRESENT IN DUCT
5. NO WIRE CONNECTION

EM1-0001-31-052

R Pack No. 2 and No. 3 Hot Manifold Temp Control Valve
R Position Monitoring Schematic
R SCHEM 3

EFFECTIVITY: ALL

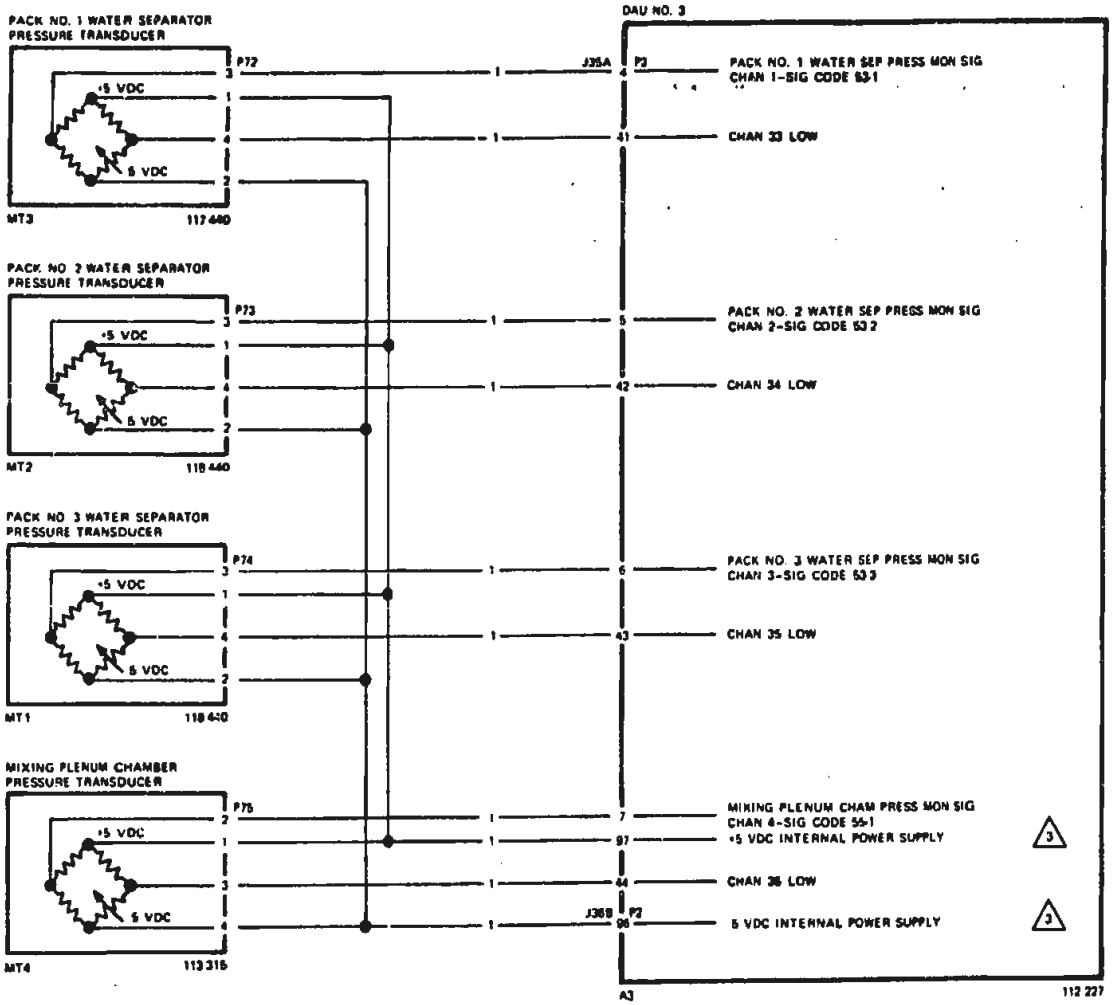
0018



R Pack No. 2 or No. 3 Hot Manifold Isolation Valves
R Position Monitoring Schematic
R SCHEM 4

EFFECTIVITY: ALL

001B



WATER SEPARATOR PRESSURE TRANSDUCER – SIGNAL CHARACTERISTICS				
INPUT RANGE	PARAMETER (PSIG)	ACCURACY (%)	SIG COND	
			INPUT MVDC	DIGITS
0	0.0	2.5	0	000
1	0.3		3	087
2	0.6		6	175
3	0.9		9	262
4	1.2		12	349
5	1.5		15	437
6	1.8		18	524
7	2.1		21	612
8	2.4		24	699
9	2.7		27	786
10	3.0	2.5	30	874

MIXING PLENUM PRESSURE TRANSDUCER – SIGNAL CHARACTERISTICS			
INPUT RANGE	PARAMETER (IN H_2O)	SIG COND	
		INPUT MVDC	DIGITS
0	0.0	0	000
1	1.5	2	058
2	3.0	4	116
3	4.5	6	175
4	6.0	8	233
5	7.5	10	291
6	9.0	12	349
7	10.5	14	408
8	12.0	16	466
9	13.5	18	524
10	15.0	20	582

SIG RECORDING SEQ	
SIG CODE	SEQ
53 1	147
53 2	148
53 3	149
55-1	152

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
53 1	176
53 2	177
53 3	178
55-1	181

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31 32-02	8

NOTE

1 ⟵ 4 ⟶ * NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATIONS PREFIXED WITH 3132

3 DAU NO. 3 INTERNAL POWER SUPPLY

4 PACK NO. 1, 2, AND 3 WATER SEPARATOR PRESSURE AND MIXING PLENUM CHAMBER PRESSURE MONITORING CHANNELS (AIDS SIGNAL CODES 53 1 THRU 53 3 AND 55-1)

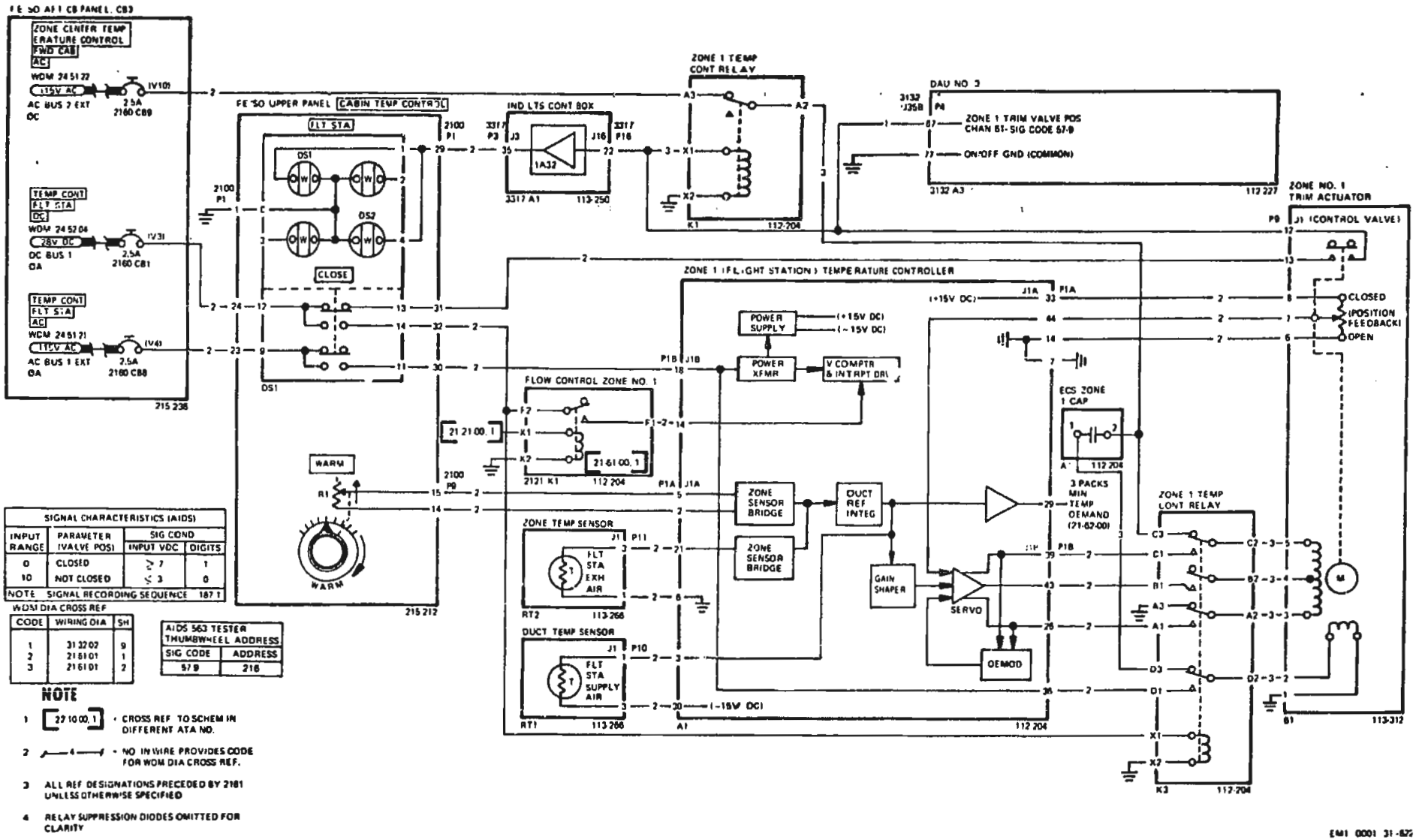
EM1-0002-31-837

R
R
R

Pack Water Separator Pressure and Mixing Plenum Chamber Pressure Monitoring Schematic
SCHEM 5

EFFECTIVITY: ALL

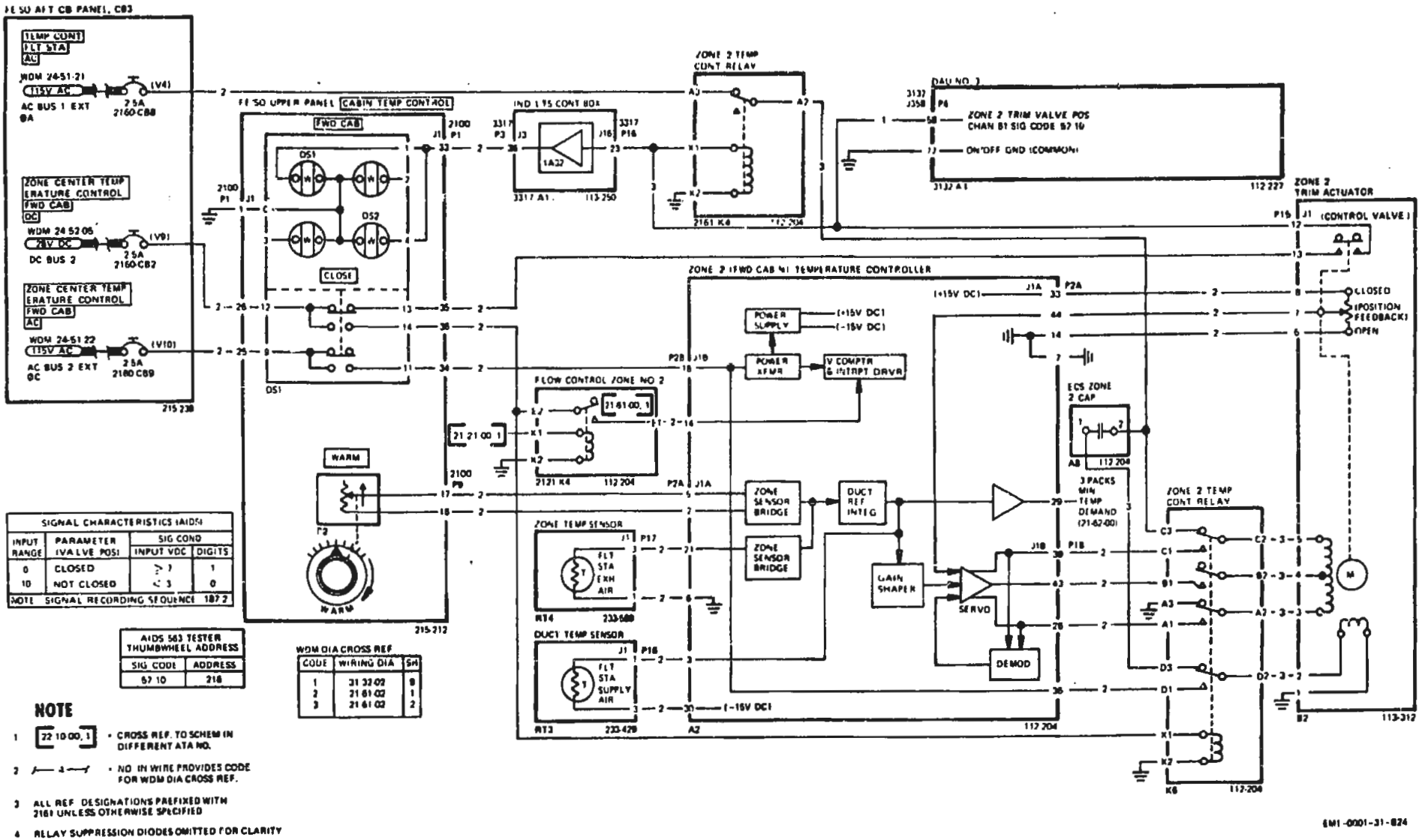
0018



R Zone 1 (Flight Station) Trim Actuator
R Position Monitoring Schematic
R SCHEM 6

EFFECTIVITY: ALL

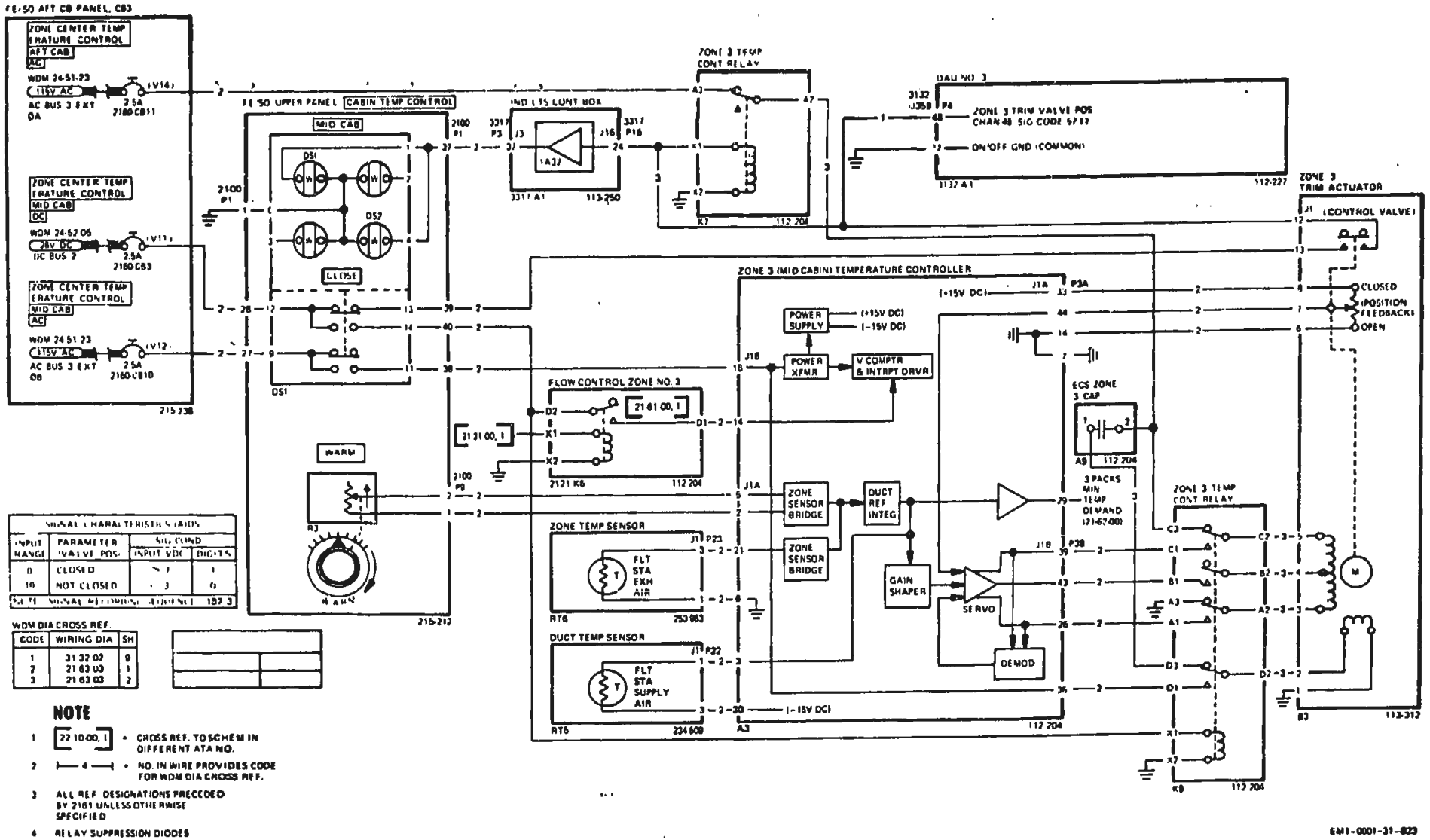
001B



R Zone 2 (Forward Cabin) Trim Actuator Position
R Monitoring Schematic
R SCHEM 7

EFFECTIVITY: ALL

001B



NOTE

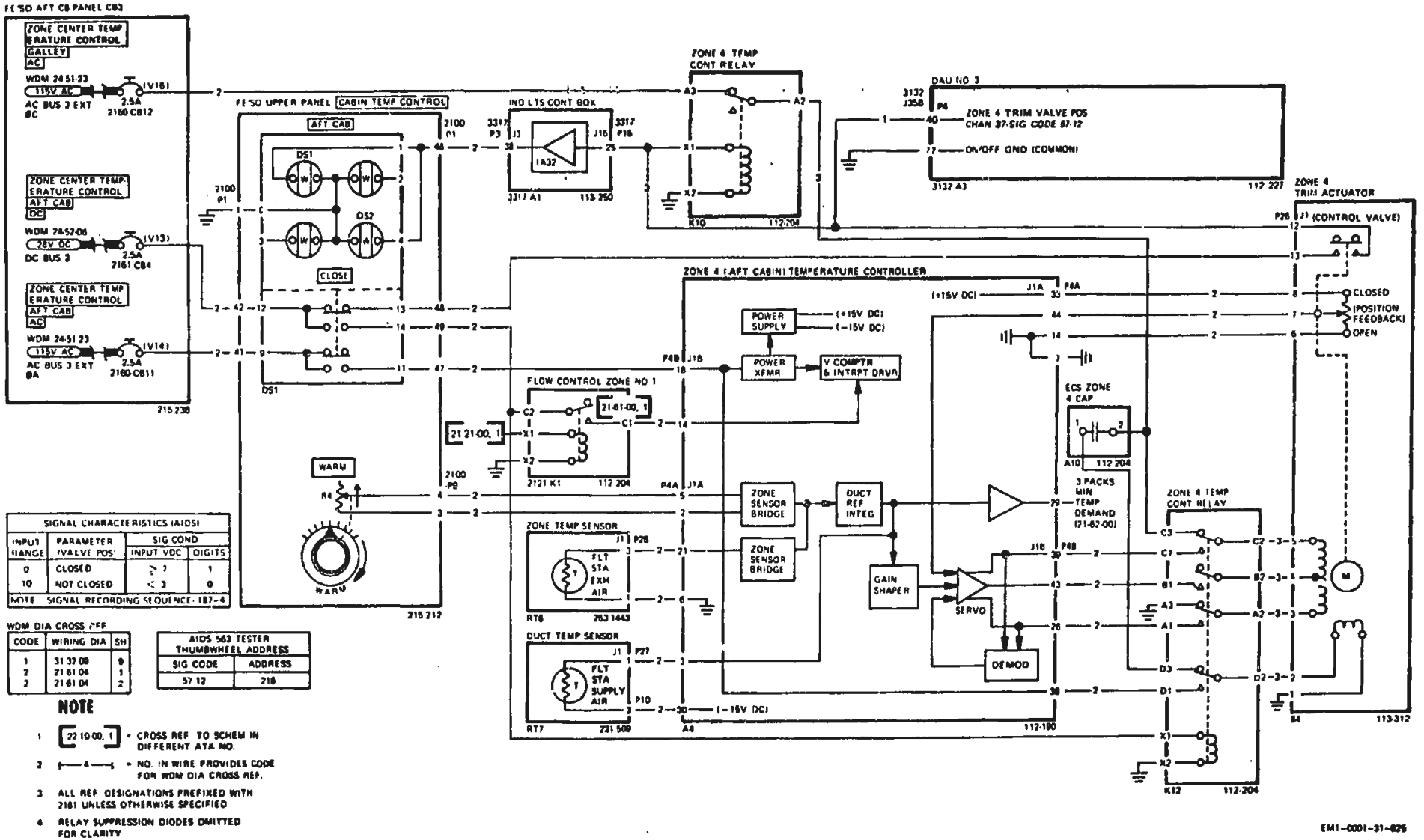
1. [22 10 00, 1] • CROSS REF. TO SCHEM IN DIFFERENT ATA NO.
2. —4— • NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.
3. ALL REF. DESIGNATIONS PRECEDED BY 2181 UNLESS OTHERWISE SPECIFIED
4. RELAY SUPPRESSION DIODES OMITTED FOR CLARITY

EM1-0001-31-823

R Zone 3 (Mid Cabin) Trim Actuator Position
R Monitoring Schematic
R SCHEM 8

EFFECTIVITY: ALL

0018



SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (VALVE POS)	SIG COND INPUT VDC	SIG COND DIGITS
0	CLOSED	≥ 7	1
10	NOT CLOSED	≤ 3	0

NOTE SIGNAL RECORDING SEQUENCE: 187-4

WDM DIA CROSS REF

CODE	WIRING DIA	SH
1	31 32 09	9
2	21 61 04	1
2	21 61 04	2

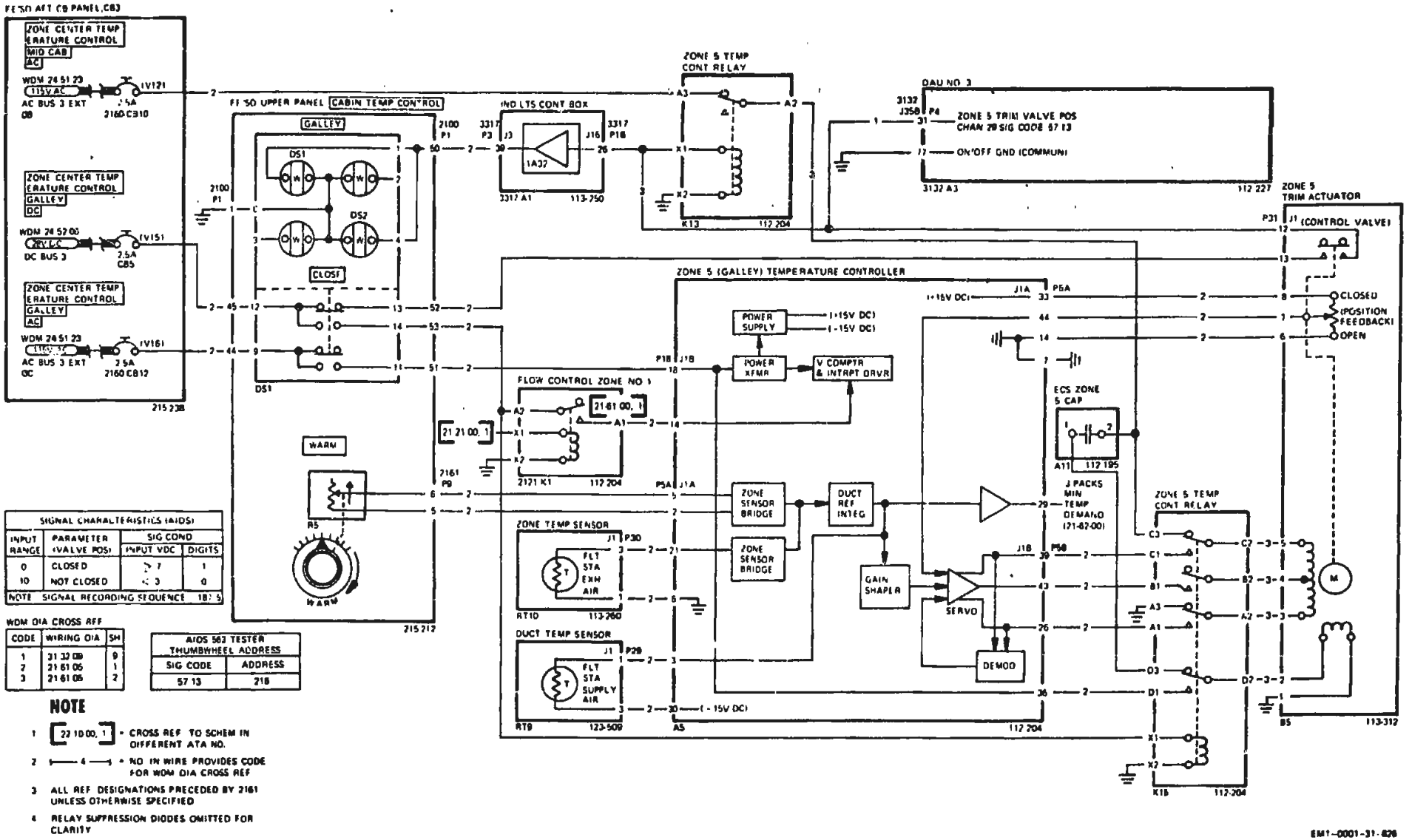
AIDS 583 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
57 12	218

NOTE

1. [22 10 00, 1] = CROSS REF TO SCHEM IN DIFFERENT ATA NO.
2. —4— = NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.
3. ALL REF DESIGNATIONS PREFIXED WITH 2181 UNLESS OTHERWISE SPECIFIED
4. RELAY SUPPRESSION DIODES OMITTED FOR CLARITY

R R R Zone 4 (Aft Cabin) Trim Actuator Position Monitoring Schematic SCHEM 9

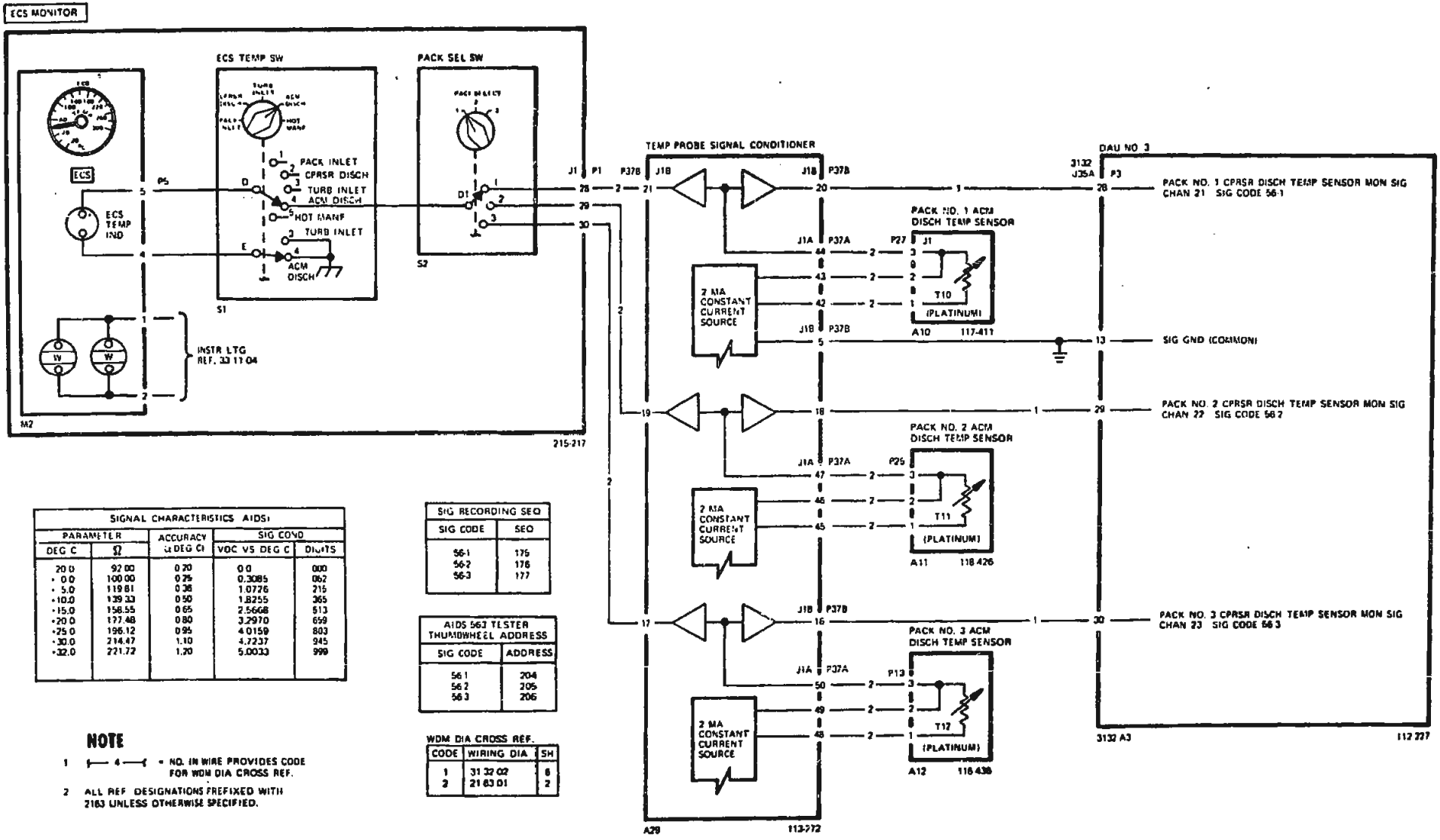
EFFECTIVITY: ALL



R Zone 5 (Galley) Trim Actuator Position Monitoring Schematic
R SCHEM 10

EFFECTIVITY: ALL

001B



SIGNAL CHARACTERISTICS (AIDS)				
PARAMETER		ACCURACY	SIG COND	
DEG C	Ω	±DEG C	VDC VS DEG C	DIGITS
20.0	92.00	0.20	0.0	000
0.0	100.00	0.25	0.3085	062
-5.0	119.81	0.35	1.0776	215
-10.0	139.33	0.50	1.8255	365
-15.0	158.55	0.65	2.5668	513
-20.0	177.48	0.80	3.2970	659
-25.0	196.12	0.95	4.0159	803
-30.0	214.47	1.10	4.7237	945
-32.0	221.72	1.20	5.0033	999

SIG RECORDING SEQ	
SIG CODE	SEQ
561	175
562	176
563	177

AIDS 562 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
561	204
562	205
563	206

WDM DIA CROSS REF.		
CODE	WIRING DIA	SH
1	31 32 02	6
2	21 63 01	2

NOTE

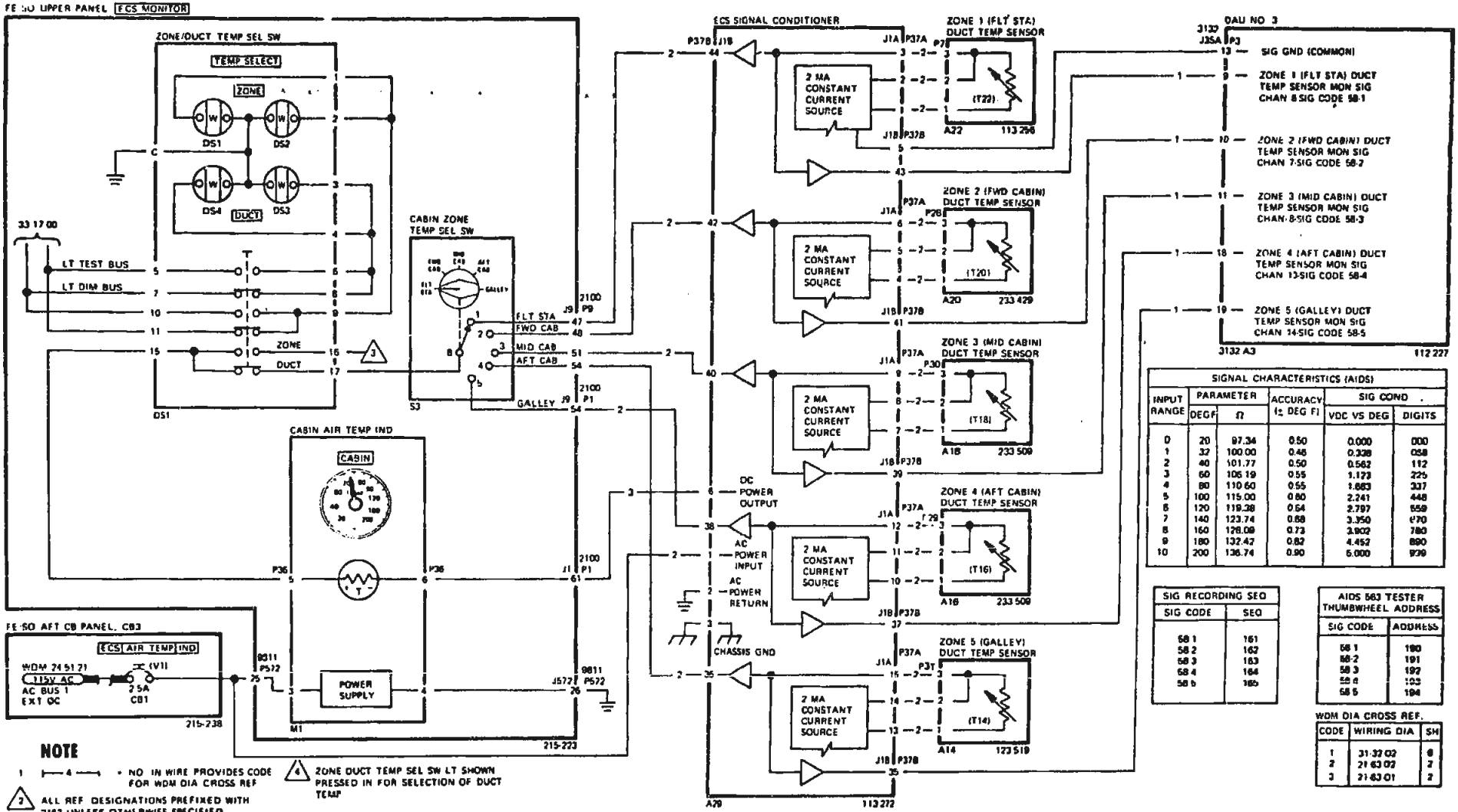
1 ⊢— 4 —⊣ = NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF DESIGNATIONS PREFIXED WITH 2163 UNLESS OTHERWISE SPECIFIED.

R Pack Air Cycle Machine Discharge Temp Monitoring Schematic
R SCHEM 11

EFFECTIVITY: ALL

001B


FE-50 UPPER PANEL ECS MONITOR
ZONE/DUCT TEMP SEL SW
TEMP SELECT
ZONE
DUCT
DS1
DS2
DS3
DS4
33 17 00
LT TEST BUS
LT DIM BUS
CABIN ZONE TEMP SEL SW
FLT STA
FWD CAB
MID CAB
AFT CAB
GALLEY
S3
CABIN AIR TEMP IND
CABIN
POWER SUPPLY
M1
215-223
FE-50 AFT CB PANEL, CB3
ECS AIR TEMP IND
WDM 24 51 21
115V AC
AC BUS 1
EXT PC
25A
CB1
215-238
ECS SIGNAL CONDITIONER
DC POWER OUTPUT
AC POWER INPUT
AC POWER RETURN
CHASSIS GND
2 MA CONSTANT CURRENT SOURCE
ZONE 1 (FLT STA) DUCT TEMP SENSOR
ZONE 2 (FWD CABIN) DUCT TEMP SENSOR
ZONE 3 (MID CABIN) DUCT TEMP SENSOR
ZONE 4 (AFT CABIN) DUCT TEMP SENSOR
ZONE 5 (GALLEY) DUCT TEMP SENSOR
A22 113 298
A20 233 429
A18 233 509
A16 233 509
A14 123 519
A29 113 272
DAU NO 3
3132 A3
112 227
SIG GND (COMMON)
ZONE 1 (FLT STA) DUCT TEMP SENSOR MON SIG CHAN 6 SIG CODE 58-1
ZONE 2 (FWD CABIN) DUCT TEMP SENSOR MON SIG CHAN 7 SIG CODE 58-2
ZONE 3 (MID CABIN) DUCT TEMP SENSOR MON SIG CHAN 8 SIG CODE 58-3
ZONE 4 (AFT CABIN) DUCT TEMP SENSOR MON SIG CHAN 13 SIG CODE 58-4
ZONE 5 (GALLEY) DUCT TEMP SENSOR MON SIG CHAN 14 SIG CODE 58-5
NOTE
1 — 4 — NO IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF
2 ALL REF DESIGNATIONS PREFIXED WITH 2163 UNLESS OTHERWISE SPECIFIED
3 TO CABIN ZONE TEMP SEL SW COMMON SELECT ARM A (ZONE TEMP INPUT)
4 ZONE DUCT TEMP SEL SW LT SHOWN PRESSED IN FOR SELECTION OF DUCT TEMP

SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER DEG F	PARAMETER Ω	ACCURACY (± DEG F)	SIG COND VDC VS DEG	SIG COND DIGITS
0	20	97.34	0.50	0.000	000
1	32	100.00	0.46	0.328	058
2	40	101.77	0.50	0.562	112
3	60	105.19	0.55	1.173	226
4	80	110.60	0.55	1.883	337
5	100	115.00	0.80	2.241	448
6	120	119.38	0.64	2.797	559
7	140	123.74	0.68	3.350	670
8	160	128.08	0.73	3.902	780
9	180	132.42	0.82	4.452	890
10	200	136.74	0.90	6.000	999

SIG RECORDING SEQ	
SIG CODE	SEQ
58 1	161
58 2	162
58 3	163
58 4	164
58 5	165

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
58 1	190
58 2	191
58 3	192
58 4	193
58 5	194

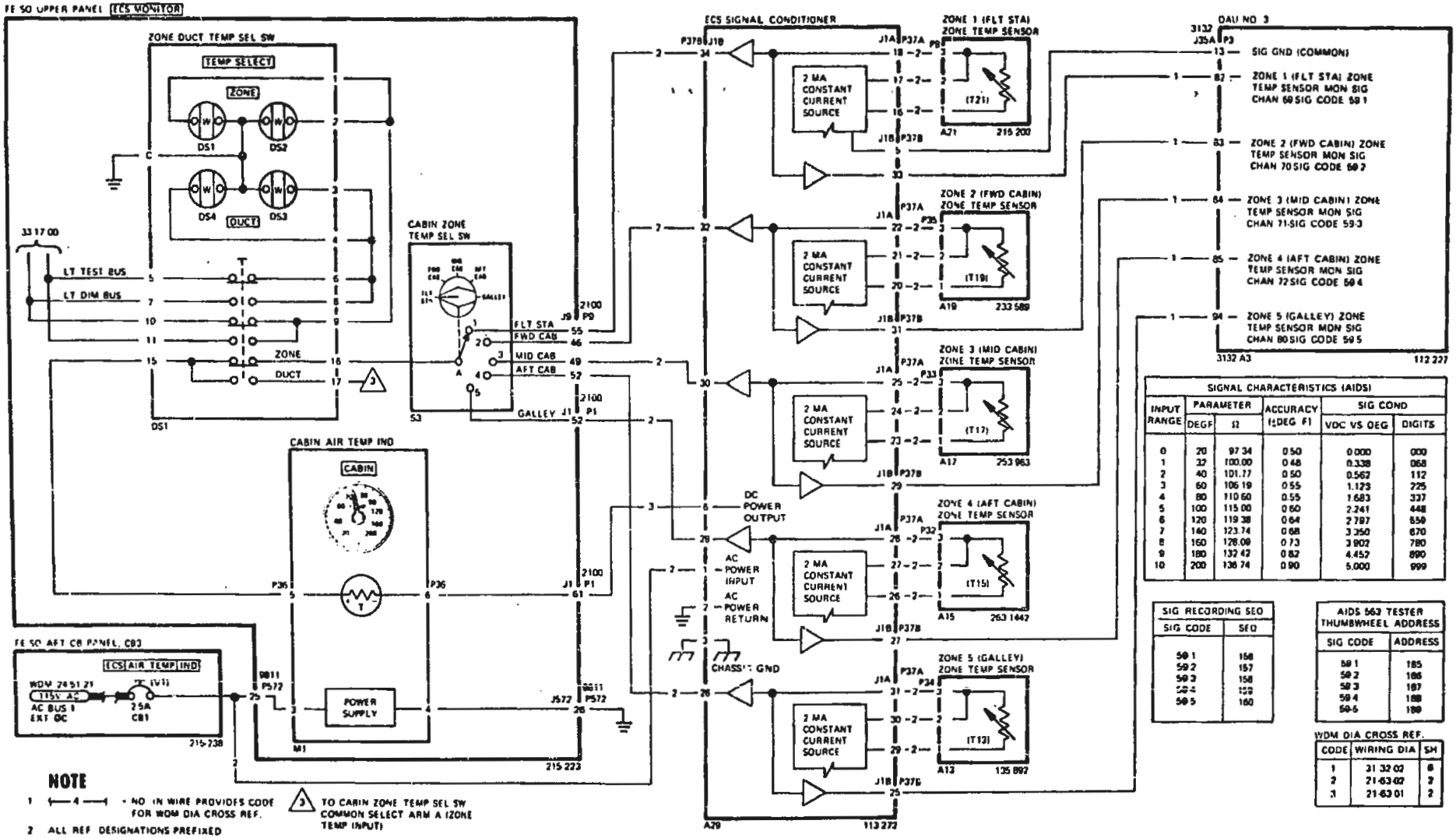
WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31-32 02	6
2	21 63 02	2
3	21 63 01	2

EMS-0001-31-845

R R Zone Supply Duct Temp Monitoring Schematic
SCHEM 12

EFFECTIVITY: ALL


FE 50 UPPER PANEL ECS MONITOR
ZONE DUCT TEMP SEL SW
TEMP SELECT
ZONE
DUCT
DS1
DS2
DS3
DS4
CABIN ZONE TEMP SEL SW
CABIN AIR TEMP IND
CABIN
FE 50 AFT CB PANEL, CB3
ECS AIR TEMP IND
115V AC
AC BUS 1
EXT PC
25A
CB1
POWER SUPPLY
LT TEST BUS
LT DIM BUS
ZONE
DUCT
FLT STA
FWD CAB
MID CAB
AFT CAB
GALLEY
ECS SIGNAL CONDITIONER
2 MA CONSTANT CURRENT SOURCE
DC POWER OUTPUT
AC POWER INPUT
AC POWER RETURN
CHASSIS GND
ZONE 1 (FLT STA) ZONE TEMP SENSOR
ZONE 2 (FWD CABIN) ZONE TEMP SENSOR
ZONE 3 (MID CABIN) ZONE TEMP SENSOR
ZONE 4 (AFT CABIN) ZONE TEMP SENSOR
ZONE 5 (GALLEY) ZONE TEMP SENSOR
DAU NO 3
SIG GND (COMMON)
ZONE 1 (FLT STA) ZONE TEMP SENSOR MON SIG CHAN 69 SIG CODE 59 1
ZONE 2 (FWD CABIN) ZONE TEMP SENSOR MON SIG CHAN 70 SIG CODE 59 2
ZONE 3 (MID CABIN) ZONE TEMP SENSOR MON SIG CHAN 71 SIG CODE 59 3
ZONE 4 (AFT CABIN) ZONE TEMP SENSOR MON SIG CHAN 72 SIG CODE 59 4
ZONE 5 (GALLEY) ZONE TEMP SENSOR MON SIG CHAN 80 SIG CODE 59 5

SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER DEGF	PARAMETER Ω	ACCURACY ±DEG F1	SIG COND VDC VS DEG	SIG COND DIGITS
0	20	97 34	0 50	0 000	000
1	32	100.00	0 48	0.338	068
2	40	101.77	0 50	0.562	112
3	60	106 19	0 55	1.123	225
4	80	110 60	0 55	1 683	337
5	100	115 00	0 60	2.241	448
6	120	119 38	0 64	2 797	559
7	140	123.74	0 68	3 350	670
8	160	128.09	0 73	3 902	780
9	180	132 42	0 82	4.457	890
10	200	136 74	0 90	5.000	999

SIG RECORDING SEQ SIG CODE	SEQ
59 1	156
59 2	157
59 3	158
59 4	159
59 5	160

AIDS 563 TESTER THUMBWHEEL ADDRESS SIG CODE	ADDRESS
59 1	185
59 2	186
59 3	187
59 4	188
59 5	189

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31 32 02	8
2	21-63-02	2
3	21-63 01	2

NOTE

1 ⟵4⟶ • NO IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF DESIGNATIONS PREFIXED WITH 2163 UNLESS OTHERWISE SPECIFIED

3 TO CABIN ZONE TEMP SEL SW COMMON SELECT ARM A (ZONE TEMP INPUT)

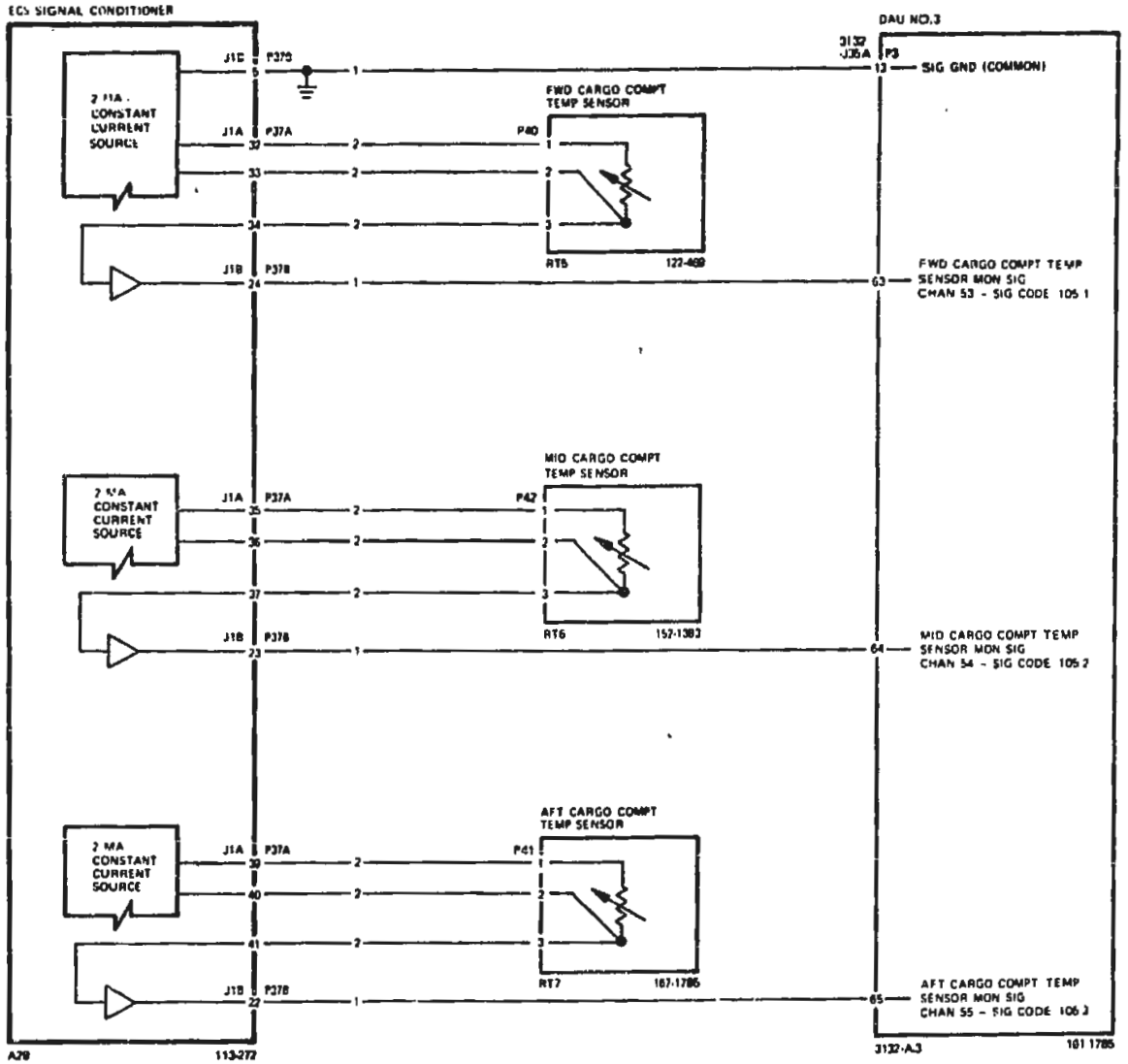
ZONE DUCT TEMP SEL SW LT SHOWN PRESSED IN FOR SELECTION OF DUCT TEMP

EM1-0001-31-84

R Zone Temperature Monitoring Schematic
R SCHEM 13

EFFECTIVITY: ALL

0018



SIGNAL CHARACTERISTICS (AIDS)					
INPUT RANGE	PARAMETER		ACCURACY (± DEG F)	SIG COND	
	DEG F	°F		INPUT VDC VS DEG	DIGITS
0	20	97.34	0.50	0.000	000
1	32	100.00	0.46	0.338	068
2	40	101.72	0.50	0.563	112
3	80	108.18	0.56	1.123	225
4	80	110.80	0.55	1.683	337
5	100	115.00	0.80	2.241	448
6	120	119.38	0.64	2.797	559
7	140	123.74	0.68	3.350	670
8	160	129.09	0.73	3.902	780
9	180	132.42	0.82	4.452	890
10	200	136.74	0.90	5.000	999

SIG RECORDING SEQ	
SIG CODE	SEQ
105-1	166
105-2	167
105-3	168

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
105-1	195
105-2	196
105-3	197

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31-32-02	6
2	31-32-02	7

NOTE

1 A——4——Y = NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATIONS PREFIXED WITH 2163 UNLESS OTHERWISE SPECIFIED

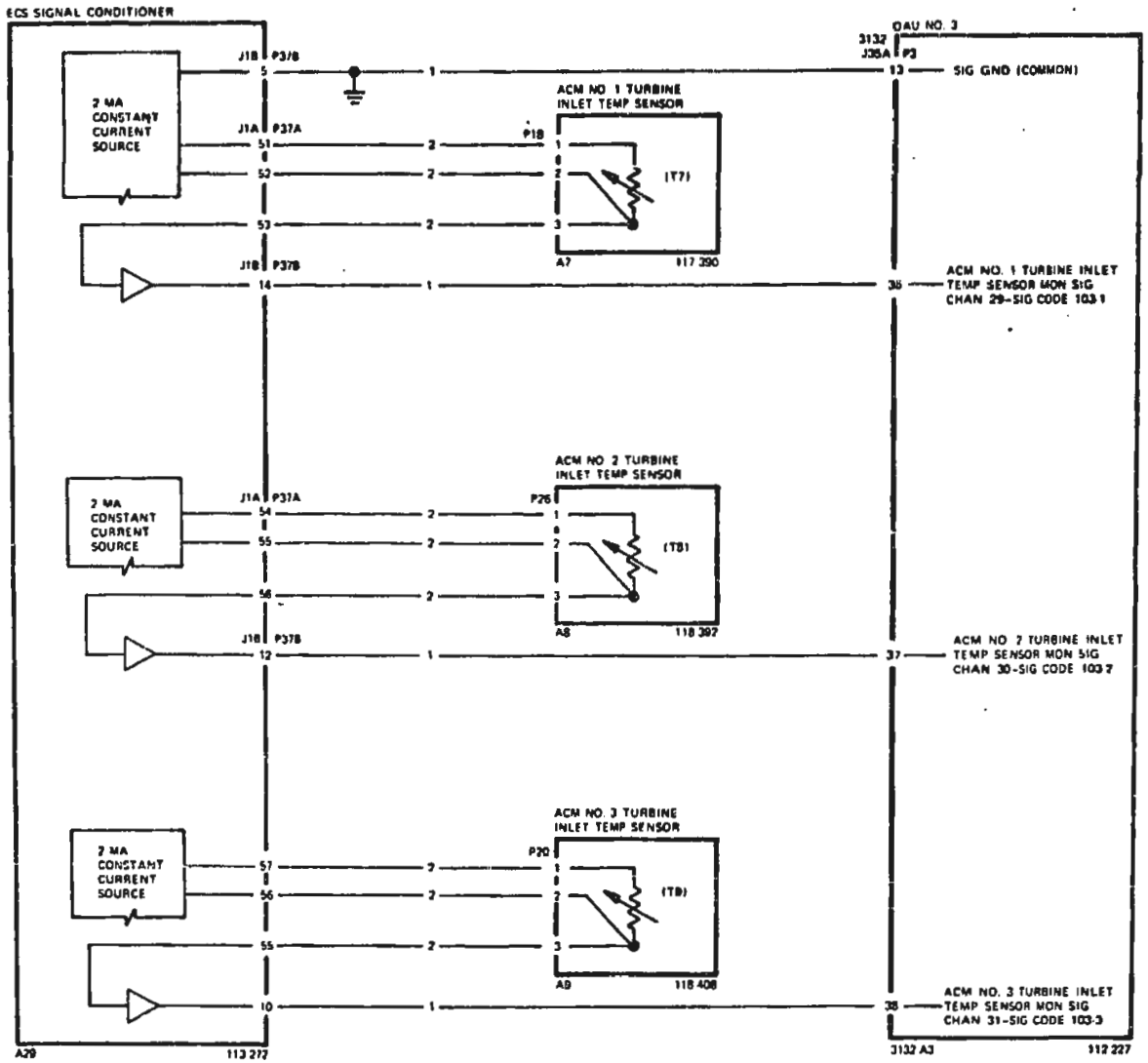
EM1-0001-31-648

R
R
R

Forward, Mid, and Aft Cargo Compt Temp
Sensor Monitoring Schematic
SCHEM 14

EFFECTIVITY: ALL

0018



SIGNAL CHARACTERISTICS (AIDS)				
PARAMETER		ACCURACY (± DEG C)	SIG COND	
DEG C	Ω		INPUT VDC VS DEG	DIGITS
-20	92.00	0.27	0.0000	000
00	100.00	0.25	0.3885	082
+50	119.81	0.38	1.0720	215
+100	139.33	0.60	1.8255	365
+150	158.55	0.65	2.5668	513
+200	177.48	0.80	3.2970	659
+250	196.12	0.95	4.0159	803
+300	214.17	1.10	4.7237	945
+320	221.72	1.20	5.0033	999

SIG RECORDING SEQ	
SIG CODE	SEQ
103-1	172
103-2	173
103-3	174

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
103-1	201
103-2	202
103-3	203

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31 32 02	8
2	21 63 01	2

NOTE

1 ⟨1⟩—4—⟨1⟩ • NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

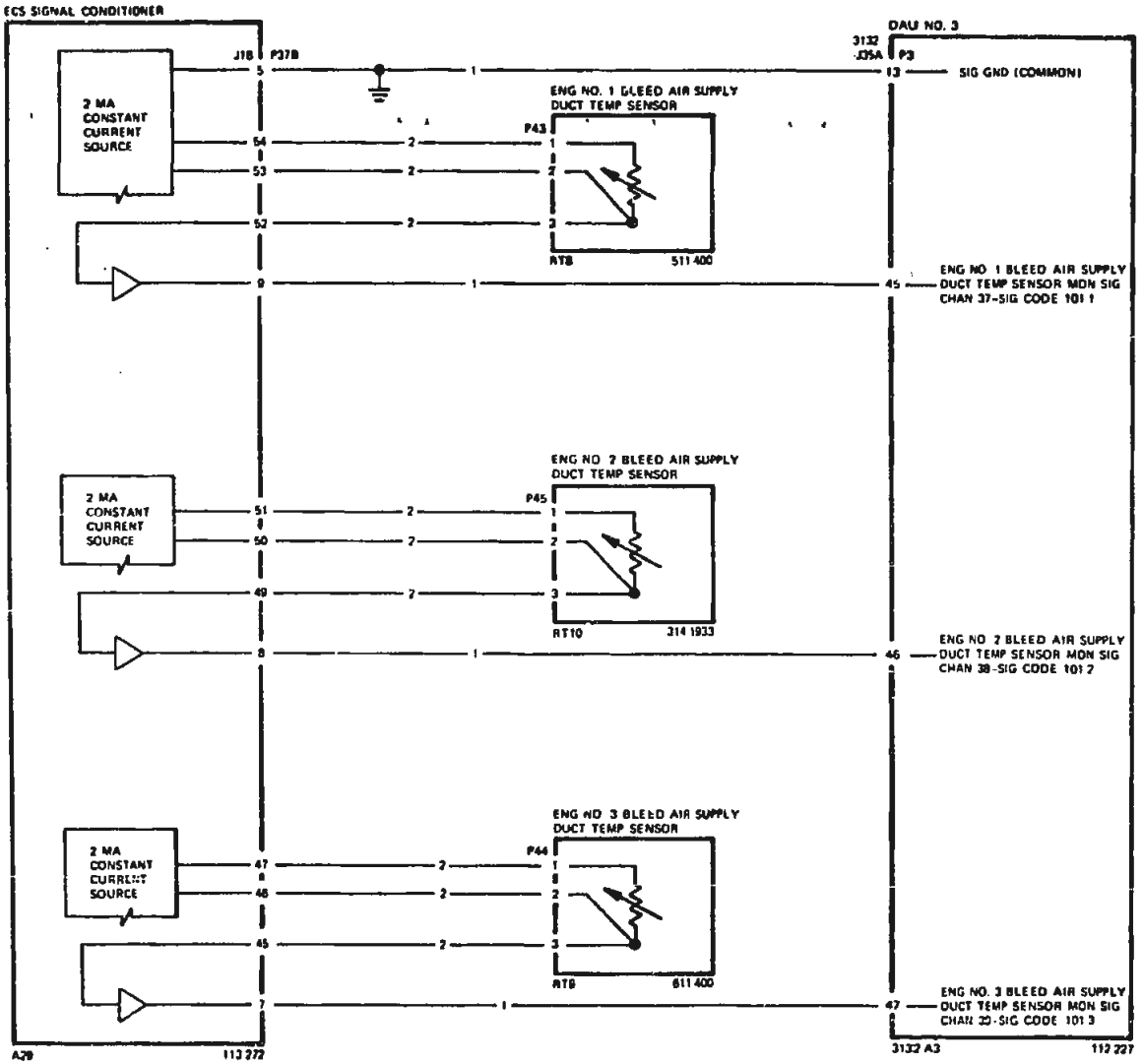
2 ALL REF. DESIGNATIONS PREFIXED WITH 2163 UNLESS OTHERWISE SPECIFIED.

EM1-0001-31-847

R Air Cycle Machine Turbine Inlet Temp Monitoring Schematic
R SCHEM 15

EFFECTIVITY: ALL

001B



SIGNAL CHARACTERISTICS (AIDS)				
PARAMETER		ACCURACY (± DEG C)	SIG COND	
DEG C	Ω		INPUT VDC VS DEG	DIGITS
-20	92 00	0.27	0 0000	000
00	100 00	0 25	0.3885	062
+50	119.81	0 36	1.0726	215
+100	139.33	0 50	1.8255	365
+150	158 55	0 65	2.5668	513
+200	177 48	0 80	3.2970	659
+250	196 12	0 95	4.0159	803
+300	214.17	1.10	4.7237	945
+320	221.72	1.20	5.0033	999

SIG RECORDING SEQ	
SIG CODE	SEQ
101 1	169
101 2	170
101 3	171

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
101 1	198
101 2	199
101 3	200

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31 32 02	6
2	31 32 02	7

NOTE

1 ⟵ 4 ⟶ - NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

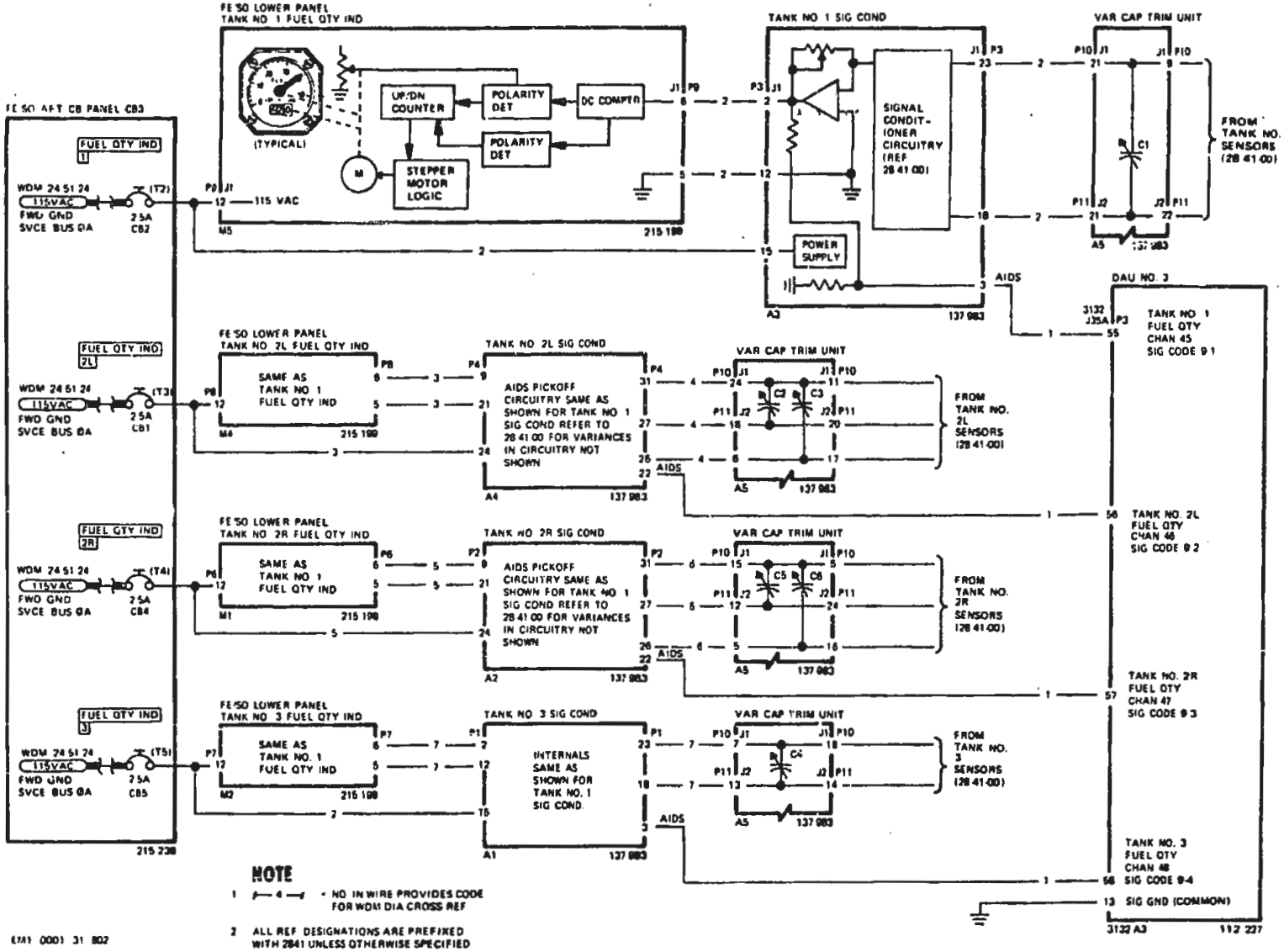
2 ALL REF. DESIGNATIONS PREFIXED WITH 2163 UNLESS OTHERWISE SPECIFIED

EM1-0001-31-846

R Engine Bleed Air Supply Duct Temp Monitoring Schematic
R SCHEM 16

EFFECTIVITY: ALL

0018


FE 50 LOWER PANEL
TANK NO. 1 FUEL QTY IND
(TYPICAL)
UP/DN COUNTER
POLARITY DET
DC COMPTR
POLARITY DET
STEPPER MOTOR LOGIC
TANK NO 1 SIG COND
SIGNAL CONDIT-IONER CIRCUITRY (REF 28 41 00)
POWER SUPPLY
VAR CAP TRIM UNIT
FROM TANK NO. 1 SENSORS (28 41 00)
FE 50 AFT CB PANEL CB3
FUEL QTY IND 1
WDM 24 51 24
115VAC
FWD GND SVCE BUS 0A
25A CB2
115 VAC
215 199
215 238
AIDS
DAU NO. 3
3132 J35A P3
TANK NO 1 FUEL QTY CHAN 45 SIG CODE 9 1
FUEL QTY IND 2L
FE 50 LOWER PANEL
TANK NO 2L FUEL QTY IND
SAME AS TANK NO 1 FUEL QTY IND
TANK NO 2L SIG COND
AIDS PICKOFF CIRCUITRY SAME AS SHOWN FOR TANK NO 1 SIG COND REFER TO 28 41 00 FOR VARIANCES IN CIRCUITRY NOT SHOWN
VAR CAP TRIM UNIT
FROM TANK NO. 2L SENSORS (28 41 00)
25A CB1
TANK NO. 2L FUEL QTY CHAN 46 SIG CODE 9 2
FUEL QTY IND 2R
FE 50 LOWER PANEL
TANK NO 2R FUEL QTY IND
SAME AS TANK NO 1 FUEL QTY IND
TANK NO 2R SIG COND
AIDS PICKOFF CIRCUITRY SAME AS SHOWN FOR TANK NO 1 SIG COND REFER TO 28 41 00 FOR VARIANCES IN CIRCUITRY NOT SHOWN
VAR CAP TRIM UNIT
FROM TANK NO. 3 SENSORS (28 41 00)
25A CB4
TANK NO. 2R FUEL QTY CHAN 47 SIG CODE 9 3
FUEL QTY IND 3
FE 50 LOWER PANEL
TANK NO 3 FUEL QTY IND
SAME AS TANK NO. 1 FUEL QTY IND
TANK NO 3 SIG COND
INTERNALS SAME AS SHOWN FOR TANK NO. 1 SIG COND.
VAR CAP TRIM UNIT
FROM TANK NO. 3 SENSORS (28 41 00)
25A CB5
TANK NO. 3 FUEL QTY CHAN 48 SIG CODE 9 4
13 SIG GND (COMMON)
3132 A3
112 227
NOTE
1 NO IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF
2 ALL REF DESIGNATIONS ARE PREFIXED WITH 2841 UNLESS OTHERWISE SPECIFIED
EM1 0001 31 802

FUEL TANK NO. 1 AND 3 IND SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (LBS x 10^2)	SIG COND	
		INPUT VDC	DIGITS
0	1	0.19	38
1	54	0.87	139
2	108	1.14	228
3	162	1.62	324
4	216	2.08	418
5	270	2.57	514
6	324	3.08	610
7	378	3.52	704
8	432	4.00	800
9	486	4.47	894
10	540	4.96	990

NOTE 0.19 VDC = 100 LBS FUEL = EMPTY
4.952 VDC = 54,000 LBS FUEL = FULL

FUEL TANK NO. 2L AND 2R IND SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (LBS x 10^2)	SIG COND	
		INPUT VDC	DIGITS
0	0.5	0.19	38
1	27	0.87	139
2	54	1.14	228
3	81	1.62	324
4	108	2.09	418
5	135	2.57	514
6	162	3.05	610
7	189	3.52	704
8	216	4.00	800
9	243	4.47	894
10	270	4.95	990

NOTE 0.19 VDC = 50 LBS FUEL = EMPTY
4.952 VDC = 27,000 LBS FUEL = FULL

SIG RECORDING SEQ	
SIG CODE NO.	SEQ
9 1	11
9 2	12
9 3	13
9 4	14

AIDS 583 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
9-1	040
9-2	041
9-3	042
9-4	043

WDM DIA CROSS REF.

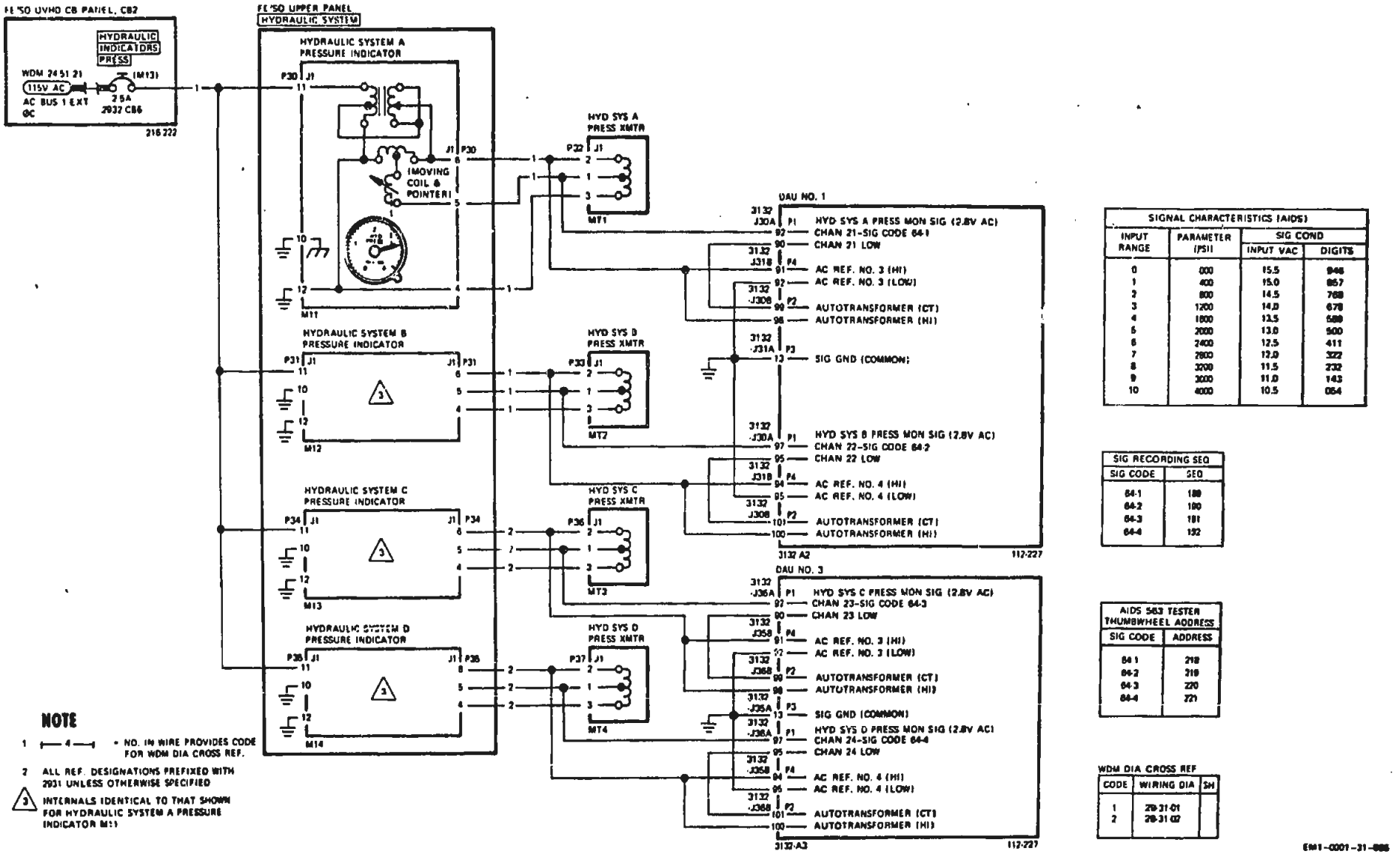
CODE	WIRING DIA	SH
1	31 32 12	2
2	28 41 01	1
3	28 41 02	1
4	28 41 02	2
5	28 41 03	1
6	28 41 03	2
7	28 41 04	1

R
R

Fuel Tank Quantity Monitoring Schematic
SCHEM 17

EFFECTIVITY: ALL

0018



NOTE

1 ⟵4⟶ * NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATIONS PREFIXED WITH 2931 UNLESS OTHERWISE SPECIFIED

3 INTERNALS IDENTICAL TO THAT SHOWN FOR HYDRAULIC SYSTEM A PRESSURE INDICATOR M11

SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (PSI)	SIG COND	
		INPUT VAC	DIGITS
0	000	15.5	946
1	400	15.0	857
2	800	14.5	768
3	1200	14.0	678
4	1600	13.5	589
5	2000	13.0	500
6	2400	12.5	411
7	2800	12.0	322
8	3200	11.5	232
9	3600	11.0	143
10	4000	10.5	054

SIG RECORDING SEQ	
SIG CODE	SEQ
64-1	188
64-2	189
64-3	191
64-4	192

AIDS 583 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
64-1	218
64-2	219
64-3	220
64-4	221

WDM DIA CROSS REF

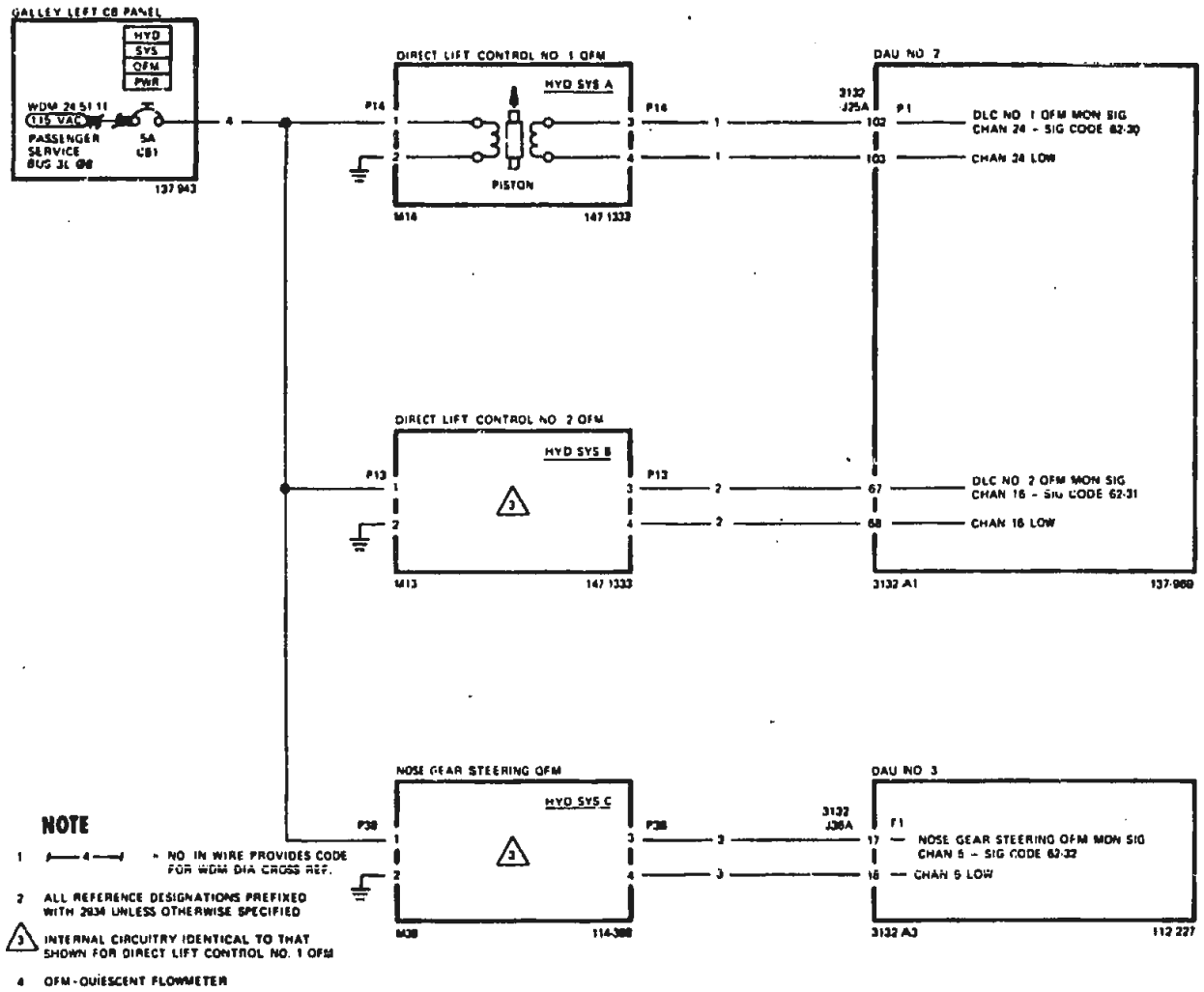
CODE	WIRING DIA	SH
1	29-31-01	
2	29-31-02	

EM1-0001-31-086

R Hydraulic Systems Pressure Monitoring Schematic
R SCHEM 18

EFFECTIVITY: ALL

0018



DIRECT LIFT CONTROL QFM SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (GPM)	SIG COND	
		INPUT VAC	DIGITS
0	0.20	2.20	186
1	0.28	3.08	261
2	0.36	3.96	336
3	0.44	4.84	410
4	0.52	5.72	485
5	0.60	6.60	559
6	0.68	7.48	634
7	0.76	8.36	708
8	0.84	9.24	783
9	0.92	10.12	858
10	1.00	11.00	932

NOSE GEAR STEERING QFM SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (GPM)	SIG COND	
		INPUT VAC	DIGITS
0	0.10	2.20	186
1	0.14	3.08	261
2	0.18	3.96	336
3	0.22	4.84	410
4	0.26	5.72	485
5	0.30	6.60	559
6	0.34	7.48	634
7	0.38	8.36	708
8	0.42	9.24	783
9	0.46	10.12	858
10	0.50	11.00	932

SIG RECORDING SEQ

SIG CODE	SEQ
62.30	238
62.31	239
62.32	240

AIDS 663 TESTER THUMBWHEEL ADDRESS

SIG CODE	ADDRESS
62.30	267
62.31	268
62.32	269

WDM DIA CROSS REF.

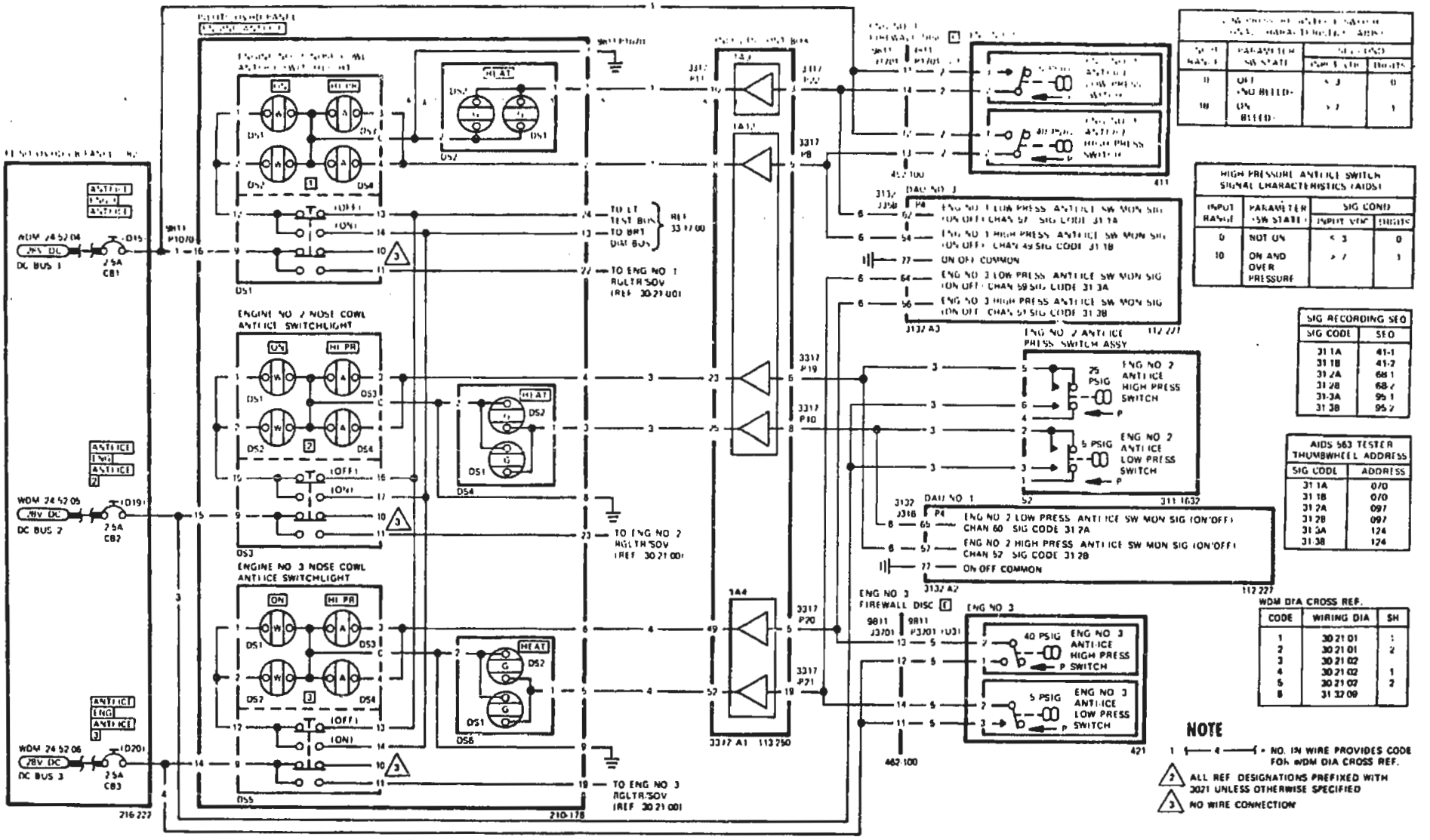
CODE	WIRING DIA	SH
1	31-32-05	1
2	31-32-05	3
3	31-32-06	1
4	29-34-01	

EM1-0001-31-836

R Direct Lift Control and Nose Gear Steering Servo Valve
R Return QFM Monitoring Schematic
R SCHEM 19

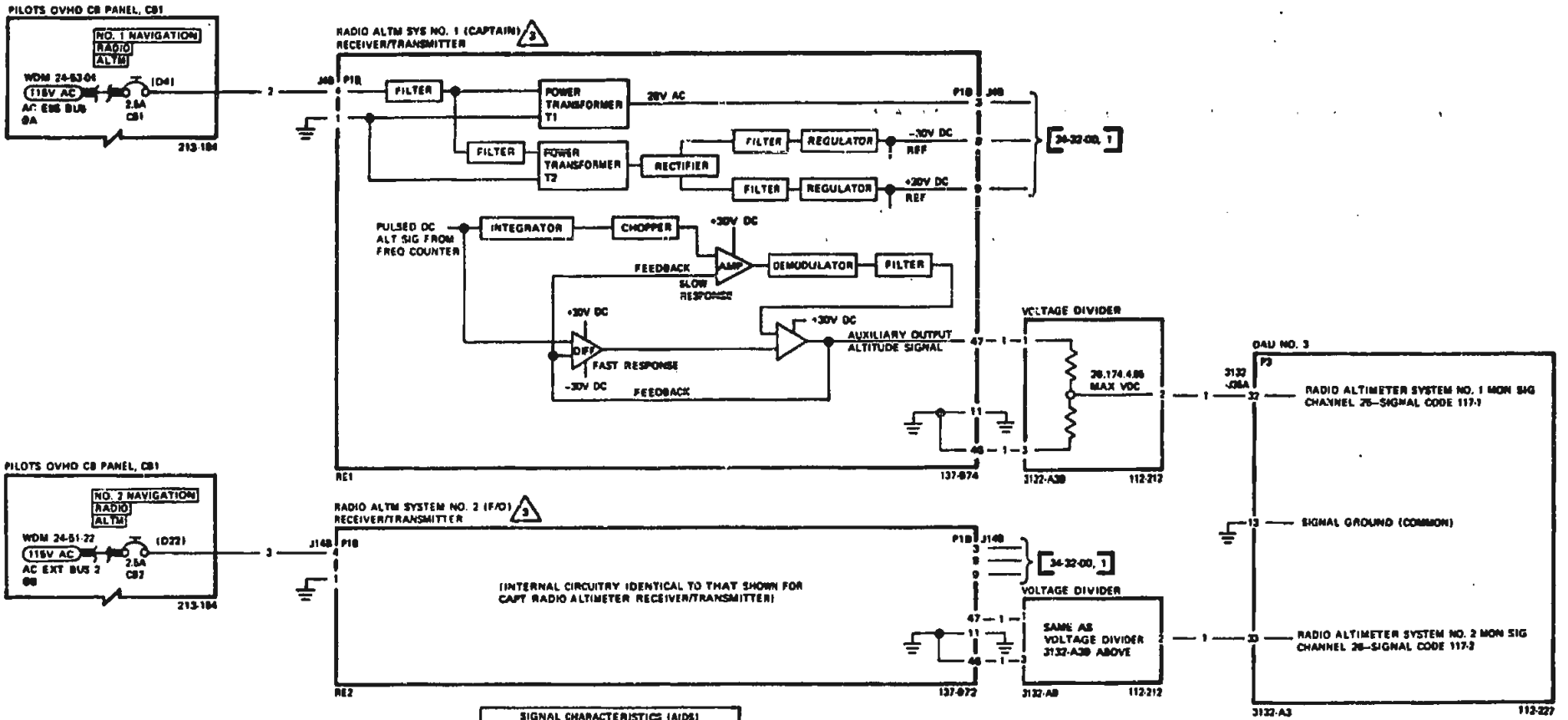
EFFECTIVITY: ALL

001B


ENGINE NO 2 NOSE COWL ANTI ICE SWITCHLIGHT
ENGINE NO 3 NOSE COWL ANTI ICE SWITCHLIGHT
HIGH PRESSURE ANTI ICE SWITCH SIGNAL CHARACTERISTICS (AIDS)
SIG RECORDING SEQ
AIDS 563 TESTER THUMBWHEEL ADDRESS
WDM DIA CROSS REF.
NOTE
ALL REF DESIGNATIONS PREFIXED WITH 3021 UNLESS OTHERWISE SPECIFIED
NO WIRE CONNECTION

Engine Low and High Pressure Anti-Ice Switch Monitoring Schematic
SCHEM 20

EFFECTIVITY: ALL



NOTE

1 [72-10-00, 1] • CROSS REF. TO SCHEM IN DIFFERENT ATA NO.

2 —— 4 —— • NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

3 ALL REF. DESIGNATIONS PREFIXED WITH 3432 UNLESS OTHERWISE SPECIFIED

SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (FT)	SIG COND	
		INPUT VDC	DIGITS
MIN	-20	0.00	000
1	-5	0.1691	038
2	100	0.45389	081
3	200	0.82213	186
4	300	1.21037	242
5	400	1.5698	315
6	480	1.89121	378
7	600	2.29801	460
8	1,000	3.72848	648
9	1,500	3.9840	798
10	2,000	4.53173	906
MAX	2,500	4.86	980

SIG RECORDING SEQ	
SIG CODE	SEQ
117-1	140
117-2	141

AIDS 583 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
117-1	169
117-2	170

WDM DIA CROSS REF.

CODE	WIRING DIA	SM
1	31-32-11	3
2	34-32-01	1
3	34-32-02	1

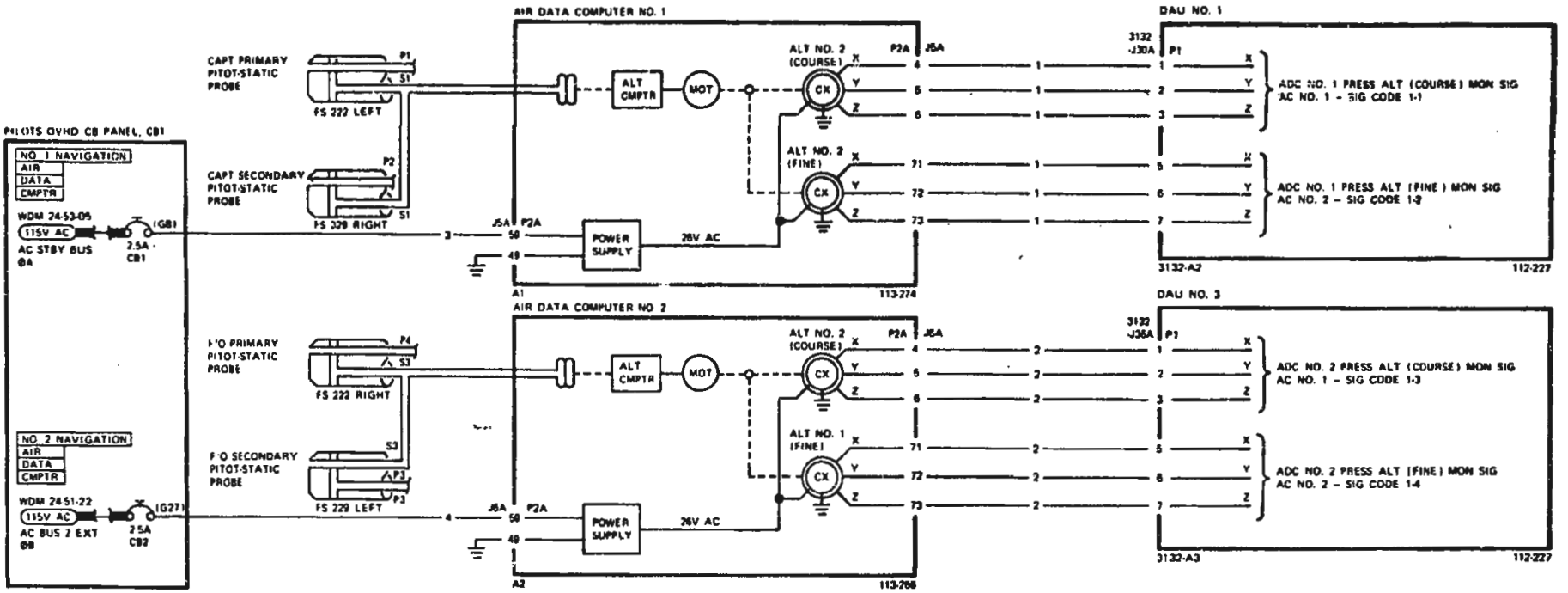
EM1-0001-31-087

R
R

Radio Altimeter Monitoring Schematic
SCHEM 21

EFFECTIVITY: ALL

0018


AIR DATA COMPUTER NO. 1
AIR DATA COMPUTER NO. 2
DAU NO. 1
DAU NO. 3
PILOTS OVHD CB PANEL, CB1
NO. 1 NAVIGATION AIR DATA CMPTR
NO. 2 NAVIGATION AIR DATA CMPTR
CAPT PRIMARY PITOT-STATIC PROBE
CAPT SECONDARY PITOT-STATIC PROBE
F/O PRIMARY PITOT-STATIC PROBE
F/O SECONDARY PITOT-STATIC PROBE
FS 222 LEFT
FS 339 RIGHT
FS 222 RIGHT
FS 229 LEFT
ALT CMPTR
MOT
POWER SUPPLY
26V AC
ALT NO. 2 (COURSE)
ALT NO. 2 (FINE)
ALT NO. 1 (FINE)
ADC NO. 1 PRESS ALT (COURSE) MON SIG AC NO. 1 - SIG CODE 1-1
ADC NO. 1 PRESS ALT (FINE) MON SIG AC NO. 2 - SIG CODE 1-2
ADC NO. 2 PRESS ALT (COURSE) MON SIG AC NO. 1 - SIG CODE 1-3
ADC NO. 2 PRESS ALT (FINE) MON SIG AC NO. 2 - SIG CODE 1-4
WDM 24-53-05
WDM 24-51-22
115V AC
AC STBY BUS 8A
AC BUS 2 EXT 8B
2.5A CB1
2.5A CB2
3132-A2
3132-A3
113-274
113-288
112-227

PRESSURE ALTITUDE (COURSE) SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (FT X 10^3)	ACCURACY (± FEET)	SIG COND INPUT (DEG)	SIG COND DIGITS
MIN	- 0.9450		357.480	883
0	0.00	15	0.00	000
1	4.995	17.5	13.37	37
2	9.980	20	26.64	74
3	14.985	25	39.90	111
4	19.980	30	53.28	148
5	24.975	35	66.60	185
6	29.970	40	79.92	222
7	34.965	50	93.24	259
8	39.960	60	106.56	296
9	44.955	70	119.88	333
10	49.950	80	133.32	370

PRESSURE ALTITUDE (FINE) SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (FT X 10^3)	ACCURACY (± FEET)	SIG COND INPUT (DEG)	SIG COND DIGITS
0	0.0		0	0
1	0.5		36	100
2	1.0	15	72	200
3	1.5		108	300
4	2.0		144	400
5	2.5		180	500
6	3.0		216	600
7	3.5		252	700
8	4.0		288	800
9	4.5		324	900
10	5.0	15	360	999

SIG RECORDING SEQ	
SIG CODE	SEQ
1-1	108
1-2	109
1-3	103
1-4	104

AIDS 563 TESTER THUMBWHEEL ADDRESS	
1-1	137
1-2	138
1-3	132
1-4	133

WDM DIA CROSS REF

CODE	WIRING DIA	SH
1	31-32-11	1
2	31-32-11	2
3	34-14-01	2
4	34-14-02	2

NOTE

1 ⊢—4—⊣ - NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

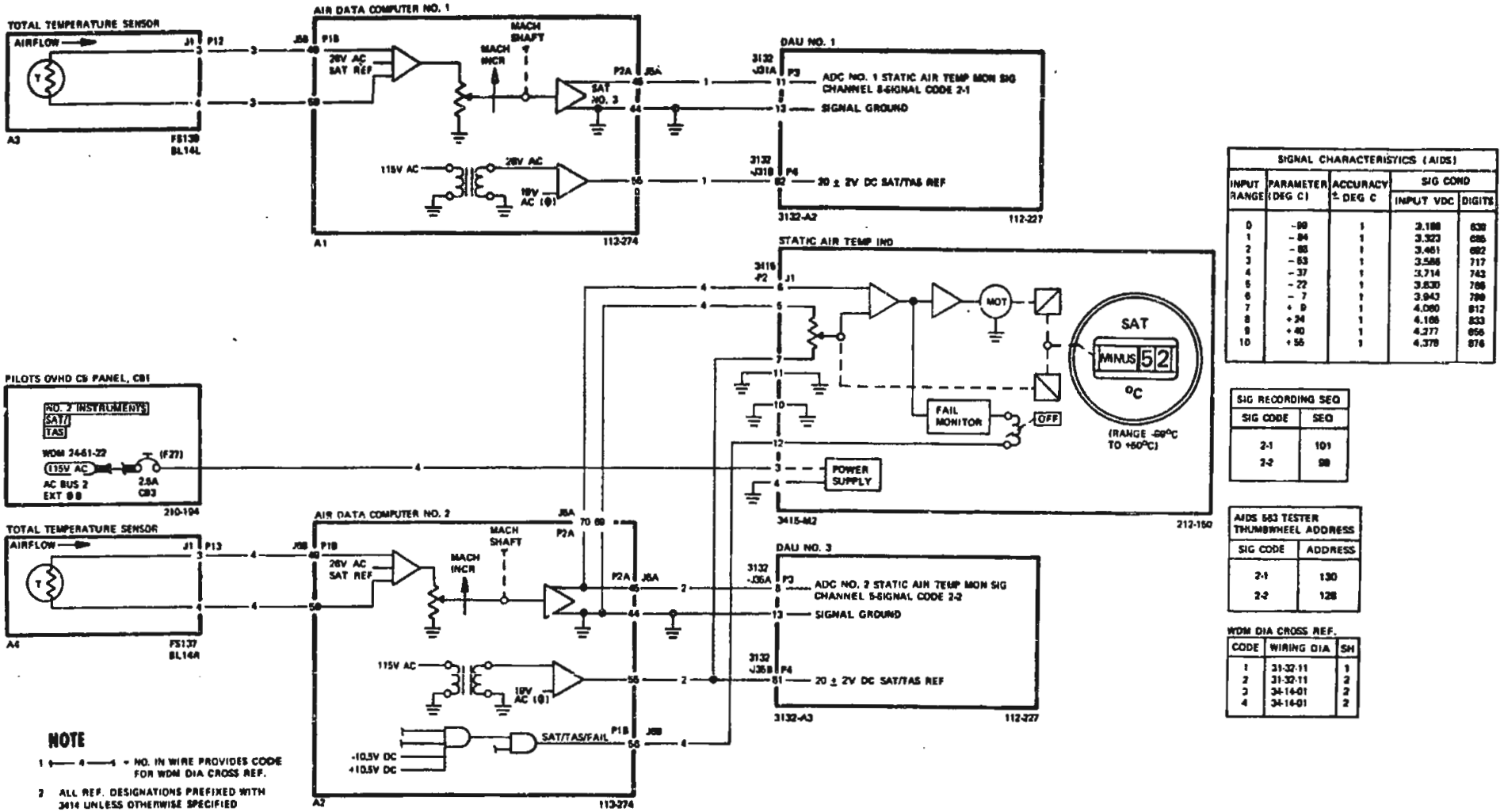
2 ALL REF DESIGNATIONS PREFIXED WITH 3414 UNLESS OTHERWISE SPECIFIED

EM1-0001-31-073

R ADC Course and Fine Pressure Altitude Monitoring Schematic
R SCHEM 22

EFFECTIVITY: ALL

001B



NOTE

1 ⟵ 4 ⟶ 4 = NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATIONS PREFIXED WITH 3414 UNLESS OTHERWISE SPECIFIED

SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (DEG C)	ACCURACY ± DEG C	SIG COND	
			INPUT VDC	DIGITS
0	-99	1	2.188	638
1	-84	1	3.323	685
2	-68	1	3.461	692
3	-53	1	3.586	717
4	-37	1	3.714	743
5	-22	1	3.830	766
6	-7	1	3.943	789
7	+9	1	4.060	812
8	+24	1	4.166	833
9	+40	1	4.277	856
10	+56	1	4.378	876

SIG RECORDING SEQ	
SIG CODE	SEQ
2-1	101
2-2	99

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
2-1	130
2-2	128

WDM DIA CROSS REF.

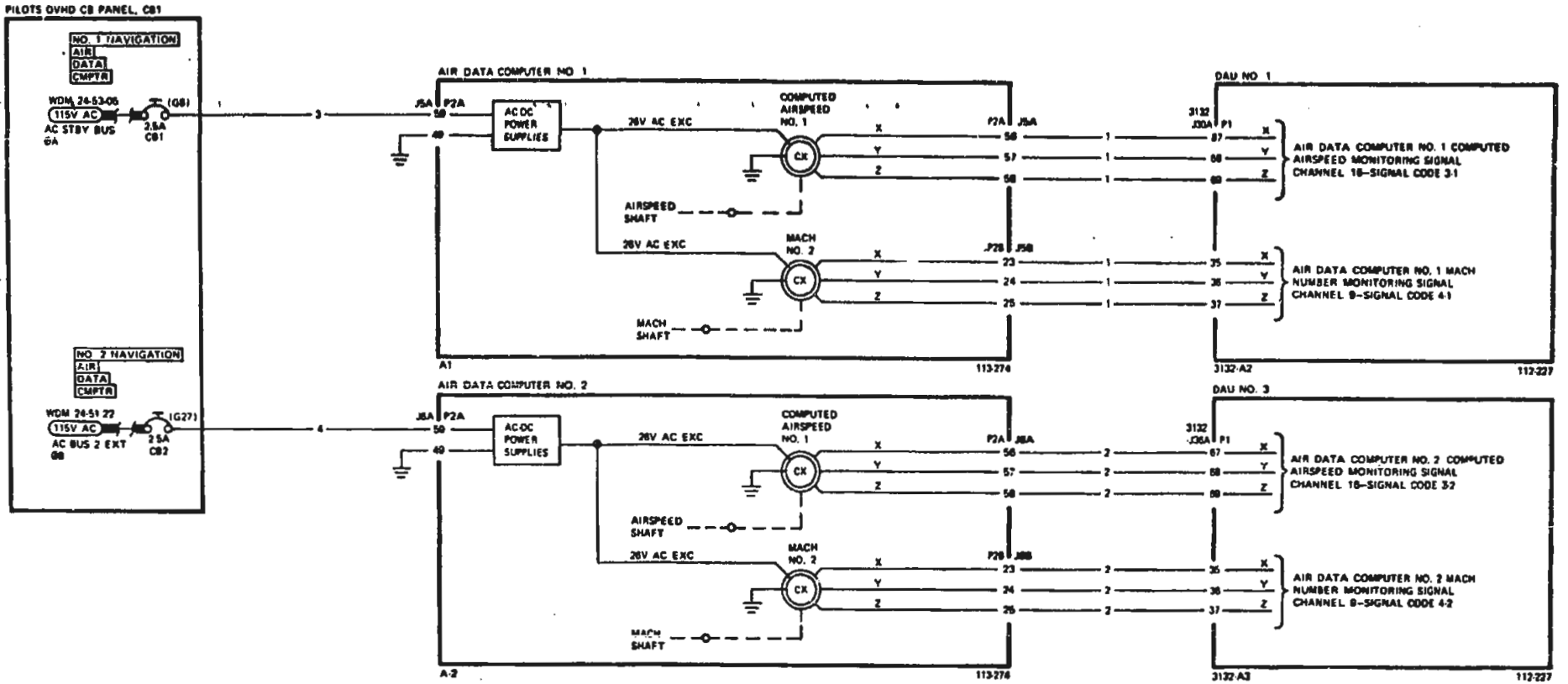
CODE	WIRING DIA	SH
1	31-32-11	1
2	31-32-11	2
3	34-14-01	2
4	34-14-01	2

EM1-0002-31-881

R ADC Static Air Temperature Monitoring Schematic
R SCHEM 23

EFFECTIVITY: ALL

001B


PILOTS OVHD CB PANEL, CB1
NO. 1 NAVIGATION AIR DATA CMPTR
WDM 24-53-05
115V AC
AC STBY BUS 6A
(G8)
2.5A CB1
NO. 2 NAVIGATION AIR DATA CMPTR
WDM 24-51-22
115V AC
AC BUS 2 EXT 6B
(G27)
2.5A CB2
AIR DATA COMPUTER NO. 1
AIR DATA COMPUTER NO. 2
AC-DC POWER SUPPLIES
26V AC EXC
COMPUTED AIRSPEED NO. 1
MACH NO. 2
AIRSPEED SHAFT
MACH SHAFT
DAU NO. 1
DAU NO. 3
AIR DATA COMPUTER NO. 1 COMPUTED AIRSPEED MONITORING SIGNAL CHANNEL 16-SIGNAL CODE 3-1
AIR DATA COMPUTER NO. 1 MACH NUMBER MONITORING SIGNAL CHANNEL 9-SIGNAL CODE 4-1
AIR DATA COMPUTER NO. 2 COMPUTED AIRSPEED MONITORING SIGNAL CHANNEL 16-SIGNAL CODE 3-2
AIR DATA COMPUTER NO. 2 MACH NUMBER MONITORING SIGNAL CHANNEL 9-SIGNAL CODE 4-2
A1
A2
113-274
3132-A2
3132-A3
112-227

NOTE

1 ⟵4⟶ * NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATION PREFIXED WITH 3414 UNLESS OTHERWISE SPECIFIED

ADC NO. 1 & NO. 2 COMPUTED AIRSPEED SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (KTS x 10)	ACCURACY (±KTS)	SIG COND INPUT DEG	SIG COND DIGITS
0	1.0	2.0	00	000
1	1.5	1.5	36	100
2	2.0		72	200
3	2.5	1.5	108	300
4	3.0		144	400
5	3.5	2.25	180	500
6	4.0		216	600
7	4.5	3.0	252	700
8	5.0		288	800
9	0.5	5.0	324	900
10	1.0	2.0	360	999

ADC NO. 1 & NO. 2 MACH NUMBER SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (MACH)	ACCURACY (±%)	SIG COND INPUT DEG	SIG COND DIGITS
0	0.2	0.01	00	000
1	0.3	0.01	36	100
2	0.4	0.01	72	200
3	0.5	0.005	108	300
4	0.6	0.005	144	400
5	0.7	0.005	180	500
6	0.8	0.005	216	600
7	0.9	0.005	252	700
8	1.0	0.01	288	800
9	0.1	0.01	324	900
10	0.2	0.01	360	999

SIG RECORDING SEQ	
SIG CODE	SEQ
3-1	110
3-2	105
4-1	107
4-2	108

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
3-1	139
3-2	134
4-1	138
4-2	136

WDM DIA CROSS REF.

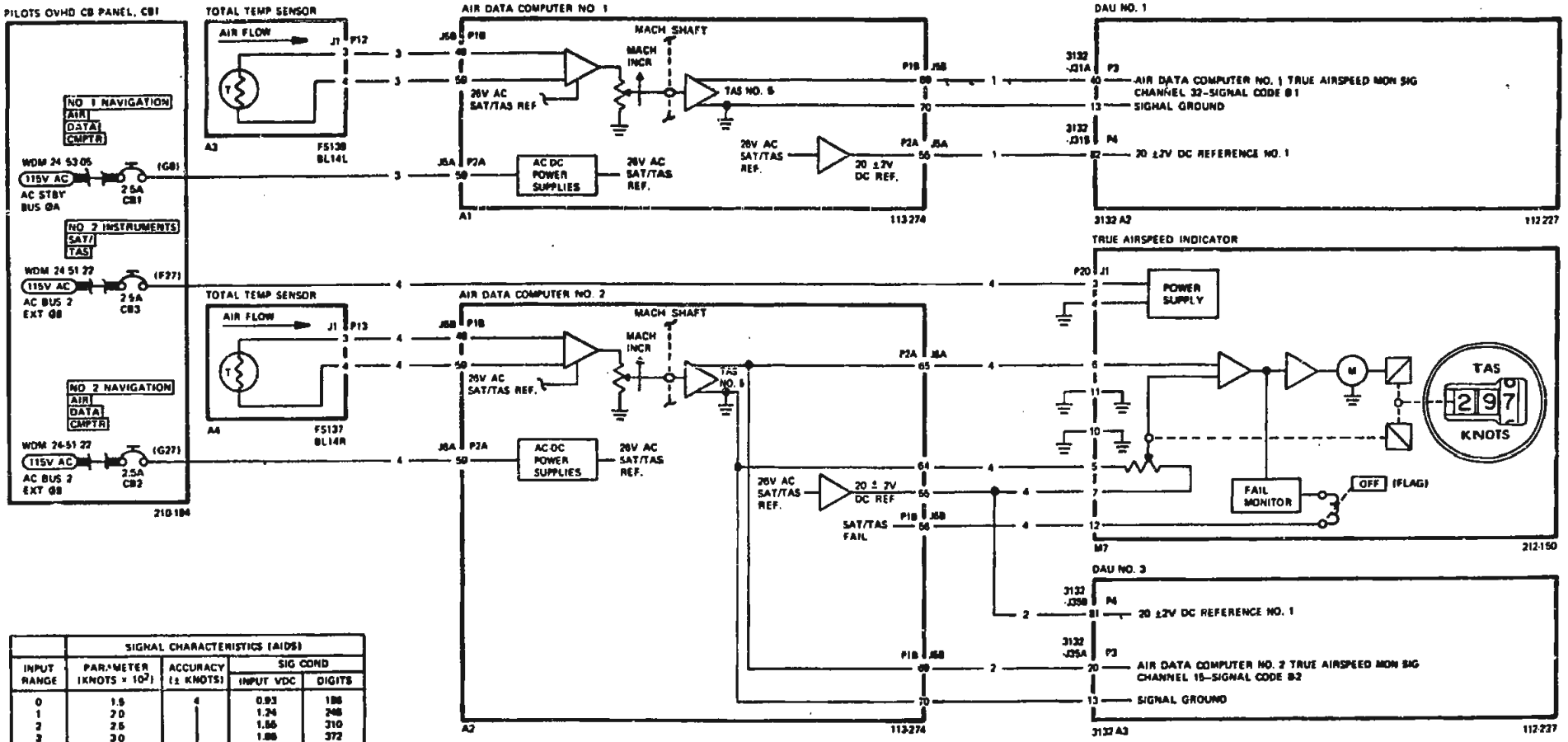
CODE	WIRING DIA	SH
1	31-32-11	1
2	31-32-11	2
3	34-14-01	2
4	34-14-02	2

E81-0001-21-002

R ADC Computed Airspeed and Mach Number Monitoring Schematic
R SCHEM 24

EFFECTIVITY: ALL

001B



	SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (KNOTS × 10^2)	ACCURACY (± KNOTS)	SIG COND INPUT VDC	SIG COND DIGITS
0	1.5	4	0.93	186
1	2.0		1.24	248
2	2.5		1.55	310
3	3.0		1.86	372
4	3.5		2.17	434
5	4.0		2.48	496
6	4.5		2.79	558
7	5.0		3.10	620
8	5.5		3.41	682
9	6.0	4	3.72	744
10	-	-	-	-

SIG RECORDING SEQ	
SIG CODE	SEQ
C1	102
B2	100

AIDS 583 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
B1	131
B2	128

WDM DIA CROSS REF.

CODE	WIRING DIA	SH
1	31-32-11	1
2	31-32-11	2
3	34-14-01	2
4	34-14-02	2

NOTE

1 ←6→ NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF. DESIGNATIONS ARE PREFIXED WITH 3414 UNLESS OTHERWISE SPECIFIED

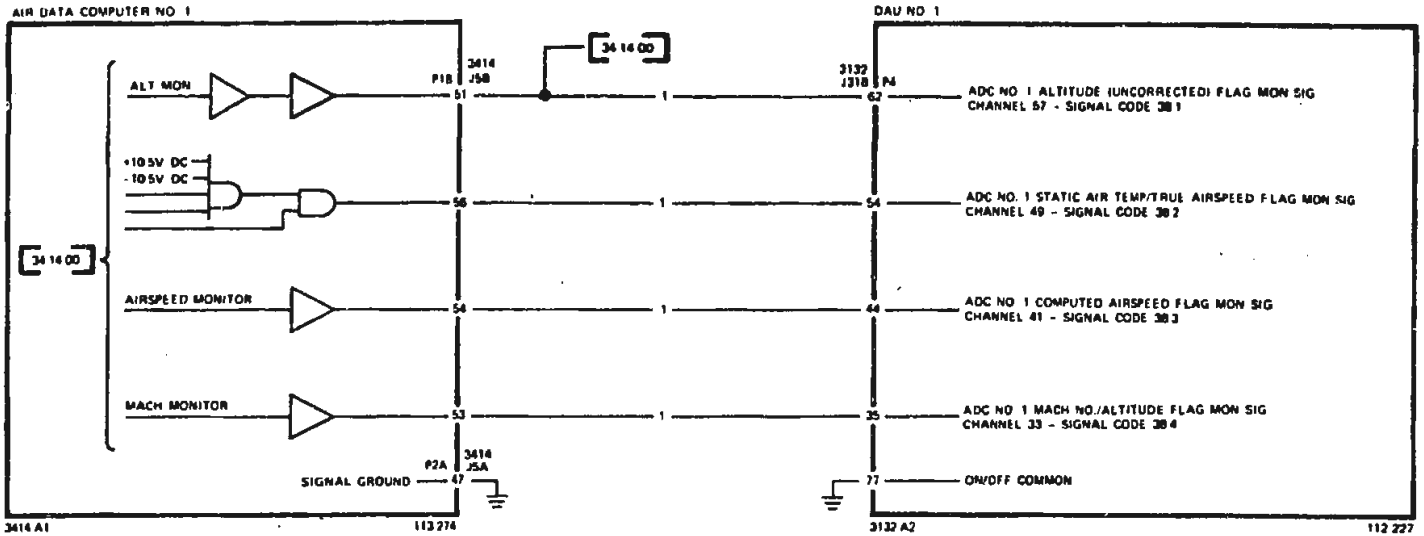
3 INPUT VDC BASED ON 20 ± 2 VDC REFERENCE

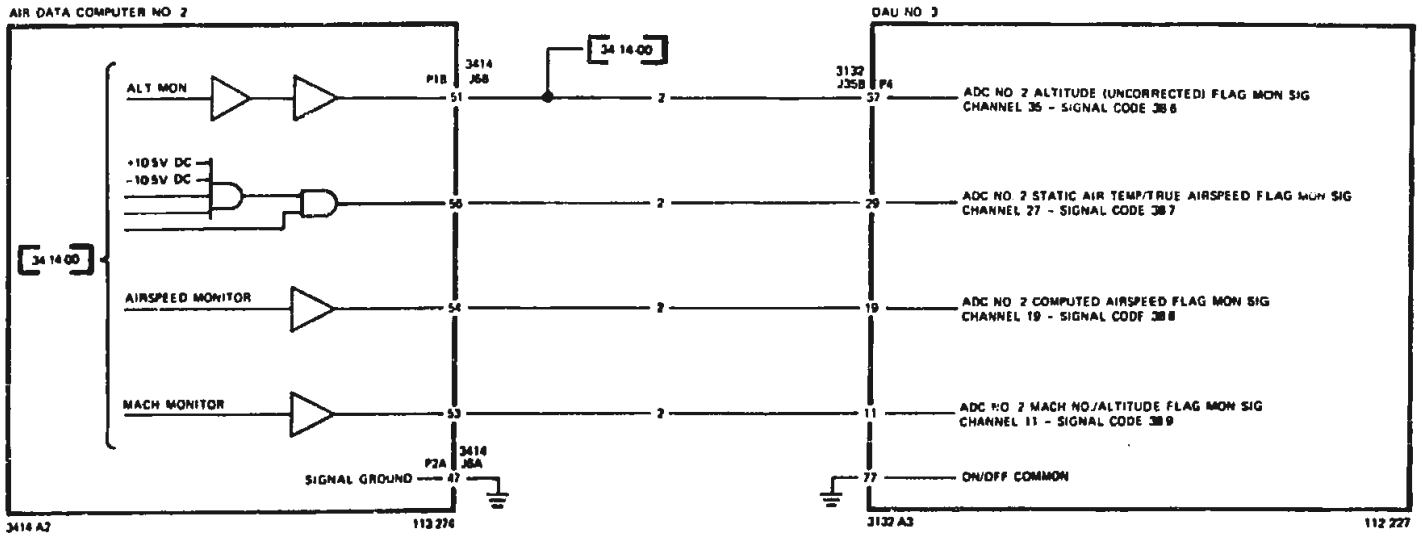
EM1-0001-31-883

R
R ADC True Airspeed Monitoring Schematic
SCHEM 25

EFFECTIVITY: ALL

0018





SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER	SIG COND	
		INPUT VDC	DIGITS
0	FAIL	- 3	0
10	NOT FAIL	+ 7	1

SIG RECORDING SEQ	
SIG CODE	SEQ
381	125 1
382	125 2
383	125 3
384	125 4
386	95 4
387	95 5
388	95 6
389	95 7

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
381	154
382	154
383	154
384	154
386	124
387	124
388	124
389	124

CODE	WIRING DIA	SH
1	31 32 11	1
3	31-32 11	2

NOTE

1 [22 10 00] - CROSS REF. TO SCHEM IN DIFFERENT ATA NO.

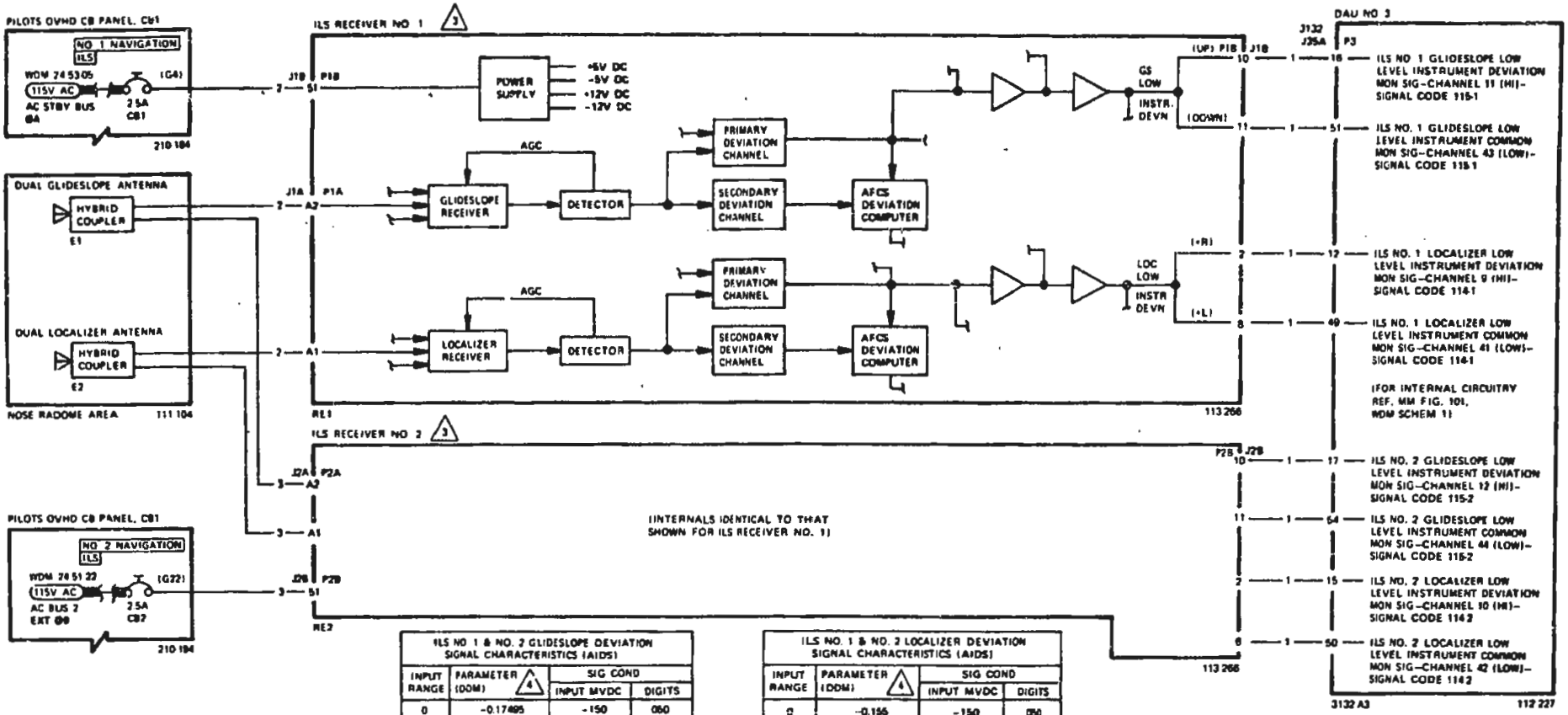
2 ⟵ 4 ⟶ - NO IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

EM1-0001-31-874

R ADC Altitude, SAT/TAS, Airspeed, and Mach Number
R Monitoring Schematic
R SCHEM 26

EFFECTIVITY: ALL

001B



NOTE

1 ⟵ 4 ⟶ * NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

2 ALL REF DESIGNATIONS PREFIXED WITH 2433 UNLESS OTHERWISE SPECIFIED

3 FOR COMPLETE INTERNAL CIRCUITRY REF. WDM 34-33-01 (ILS NO. 1) & 34-33-02 (ILS NO. 2)

4 DDM = DEPTH OF DEMODULATION REFER TO ICAO, ANNEX 10, INTERNATIONAL STANDARDS RECOMMENDED PRACTICES RELEVANT TO ILS FOR FURTHER EXPLANATION OF THIS PARAMETER MEASUREMENT

ILS NO. 1 & NO. 2 GLIDESLOPE DEVIATION SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (DDM) 4	SIG COND INPUT MVDC	SIG COND DIGITS
0	-0.17495	-150	050
1	-0.13996	-120	140
2	-0.10497	-090	230
3	-0.06998	-060	320
4	-0.03499	-030	410
5	0.00000	000	500
6	+0.03499	+030	590
7	+0.06998	+060	680
8	+0.10497	+090	770
9	+0.13996	+120	860
10	+0.17495	+150	950

NOTE

1 POSITIVE INPUT SIGNAL DEFLECTS GS BAR DOWNWARD ON HSI (FLY DOWN)

2 ONE DOT DEVIATION ON HSI EQUALS 75 MV INPUT TO AIDS

ILS NO. 1 & NO. 2 LOCALIZER DEVIATION SIGNAL CHARACTERISTICS (AIDS)

INPUT RANGE	PARAMETER (DDM) 4	SIG COND INPUT MVDC	SIG COND DIGITS
0	-0.156	-150	050
1	-0.124	-120	140
2	-0.093	-090	230
3	-0.062	-060	320
4	-0.031	-030	410
5	0.000	000	500
6	+0.031	+030	590
7	+0.062	+060	680
8	+0.093	+090	770
9	+0.124	+120	860
10	+0.156	+150	950

NOTE

1 POSITIVE INPUT SIGNAL DEFLECTS LOC BAR TO RIGHT ON HSI (FLY RIGHT)

2 ONE DOT DEVIATION ON HSI EQUALS 75 MV INPUT TO AIDS

SIG RECORDING SEQ	
SIG CODE	SEQ
114-1	136
114-2	137
115-1	138
115-2	139

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
114-1	185
114-2	186
115-1	187
115-2	188

WDM DIA CROSS REF.

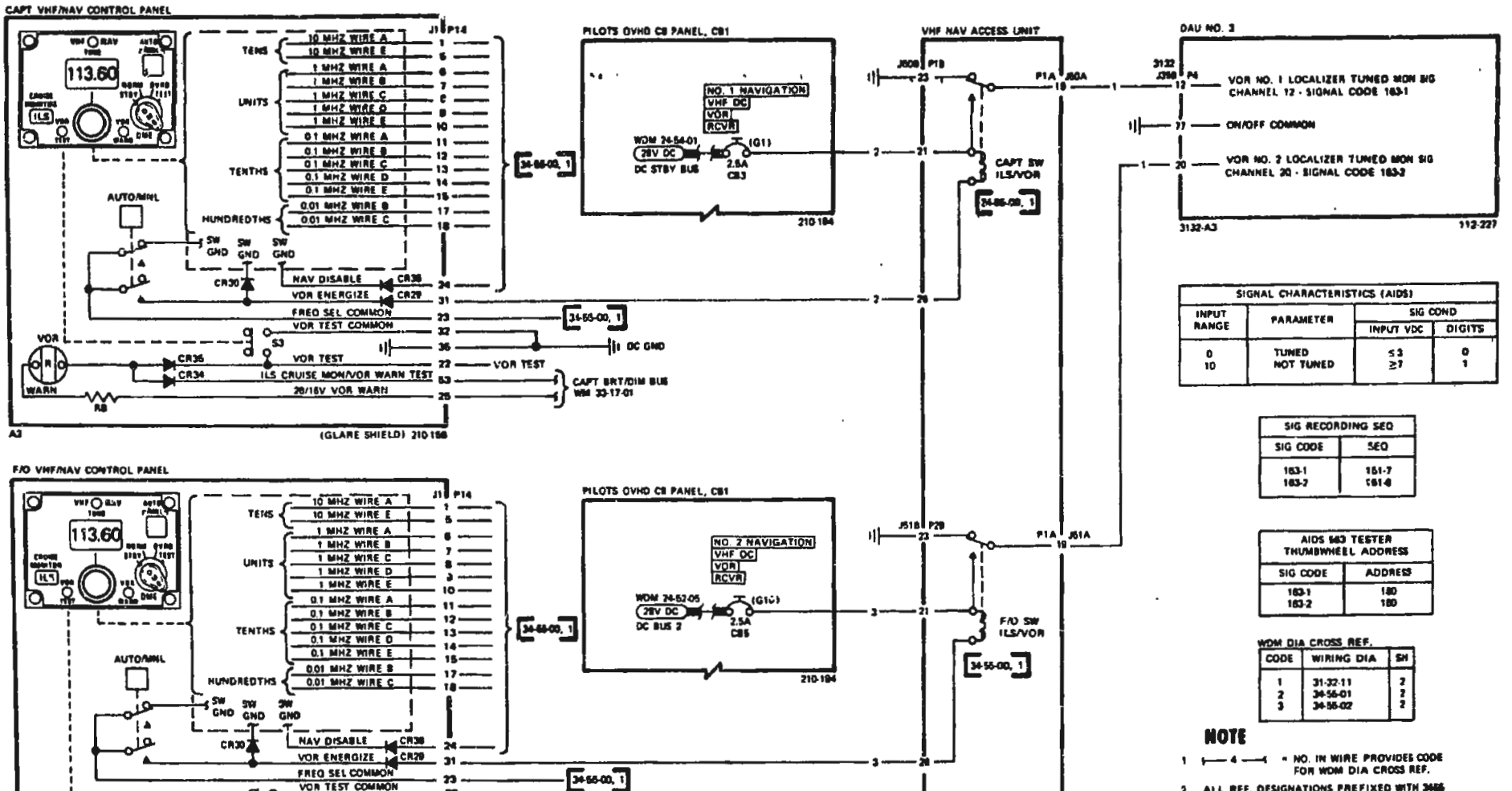
CODE	DIA WIRE	SH
1	31-32-11	3
2	34-33-01	1
3	34-33-02	1

EMI-0002-31-089

R ILS Receivers Glideslope and Localizer Deviation
R Monitoring Schematic
R SCHEM 27

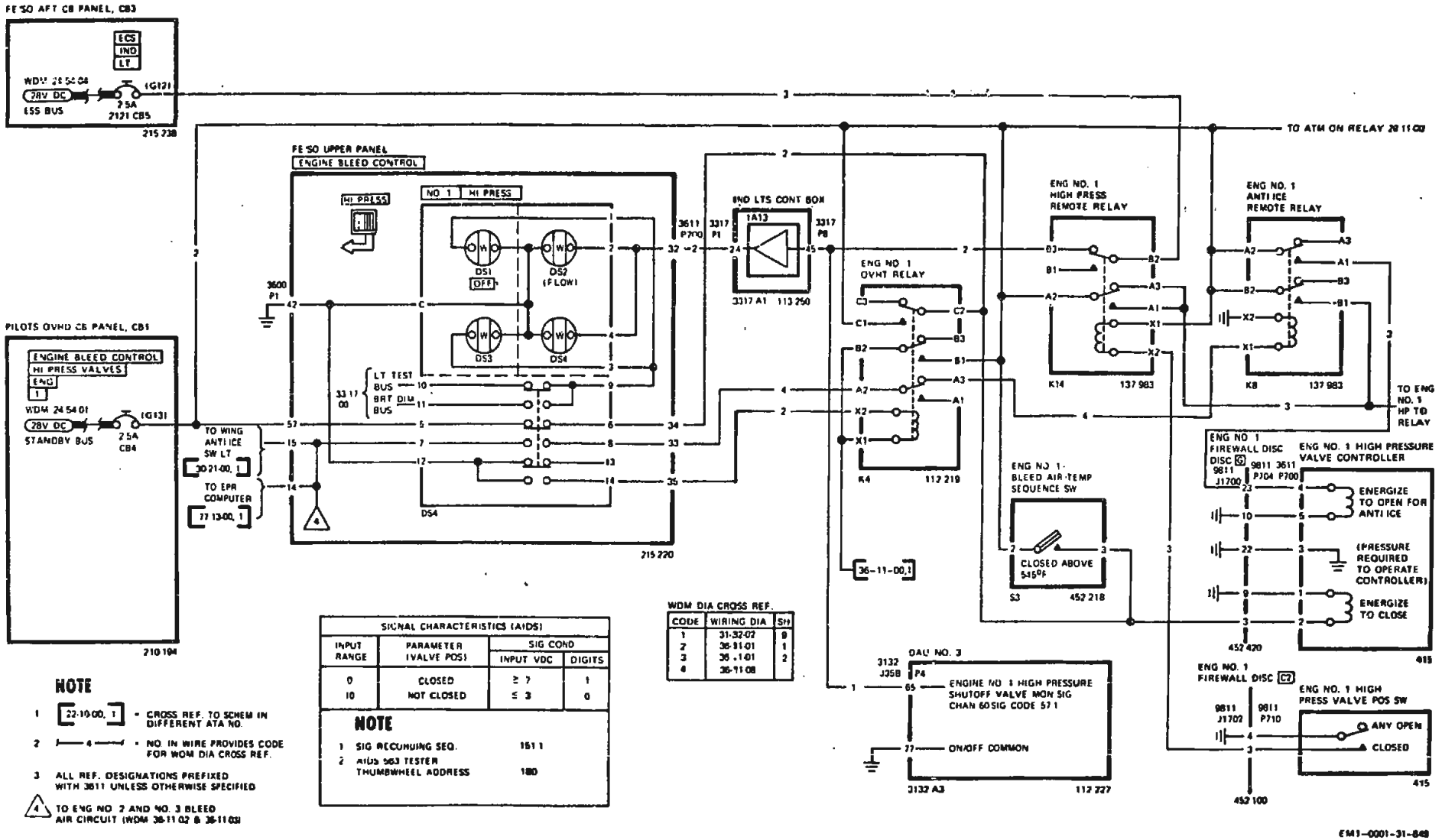
EFFECTIVITY: ALL

0018



EFFECTIVITY: ALL

001B



NOTE

1. [22-10-00, 1] - CROSS REF. TO SCHEM IN DIFFERENT ATA NO.
2. —4— - NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.
3. ALL REF. DESIGNATIONS PREFIXED WITH 3611 UNLESS OTHERWISE SPECIFIED
4. TO ENG NO. 2 AND NO. 3 BLEED AIR CIRCUIT (WDM 36-11-02 & 36-11-03)

SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (VALVE POS)	SIG COND INPUT VDC	SIG COND DIGITS
0	CLOSED	≥ 7	1
10	NOT CLOSED	≤ 3	0

NOTE

1. SIG RECOVERING SEQ. 1511
2. AIDS 963 TESTER THUMBWHEEL ADDRESS 180

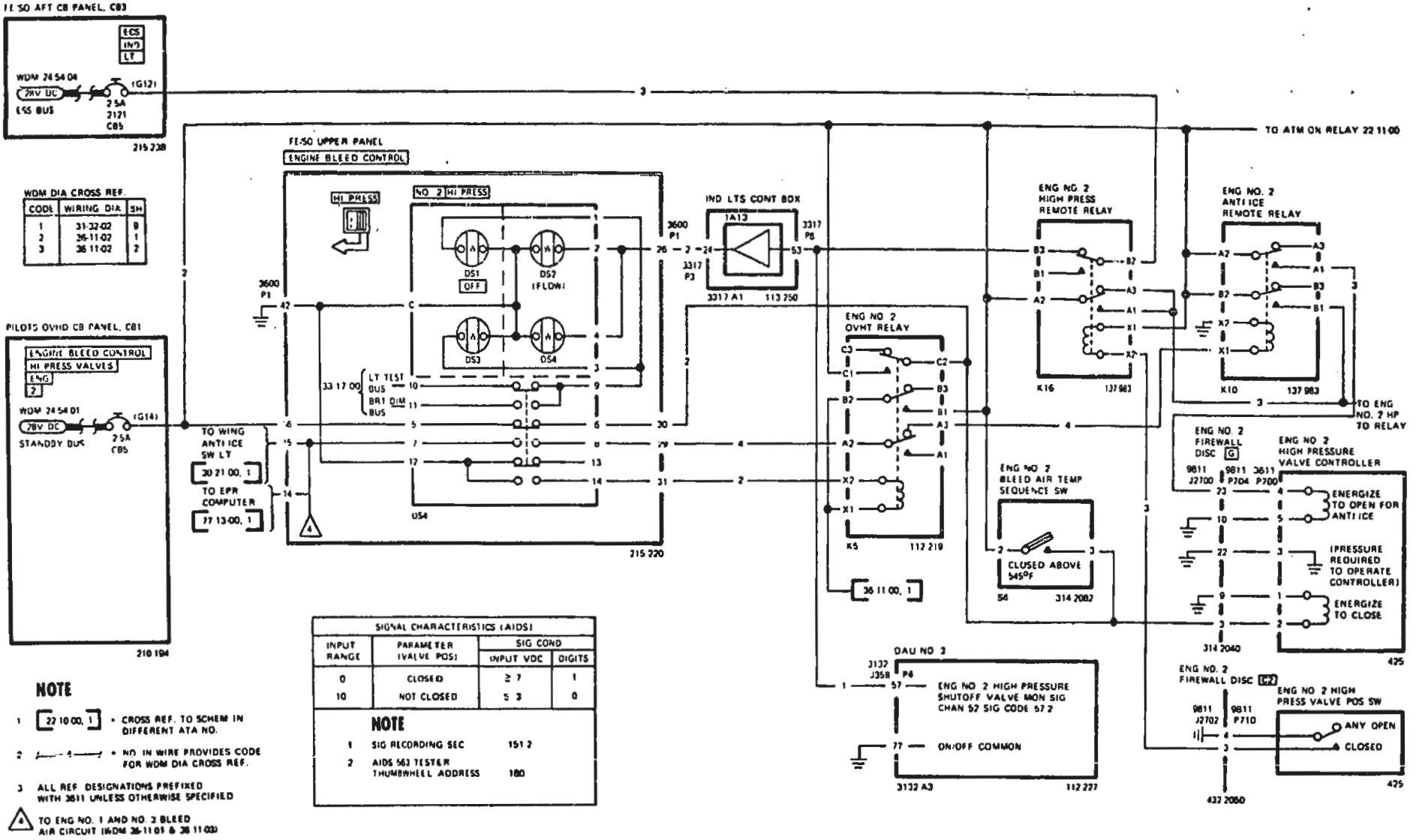
WDM DIA CROSS REF.		
CODE	WIRING DIA	SH
1	31-32-02	9
2	36-91-01	1
3	36-11-01	2
4	36-11-08	

EM1-0001-31-849

R Engine High Pressure Shutoff Valve Monitoring Schematic
R SCHEM 29 (Sheet 1)

EFFECTIVITY: ALL

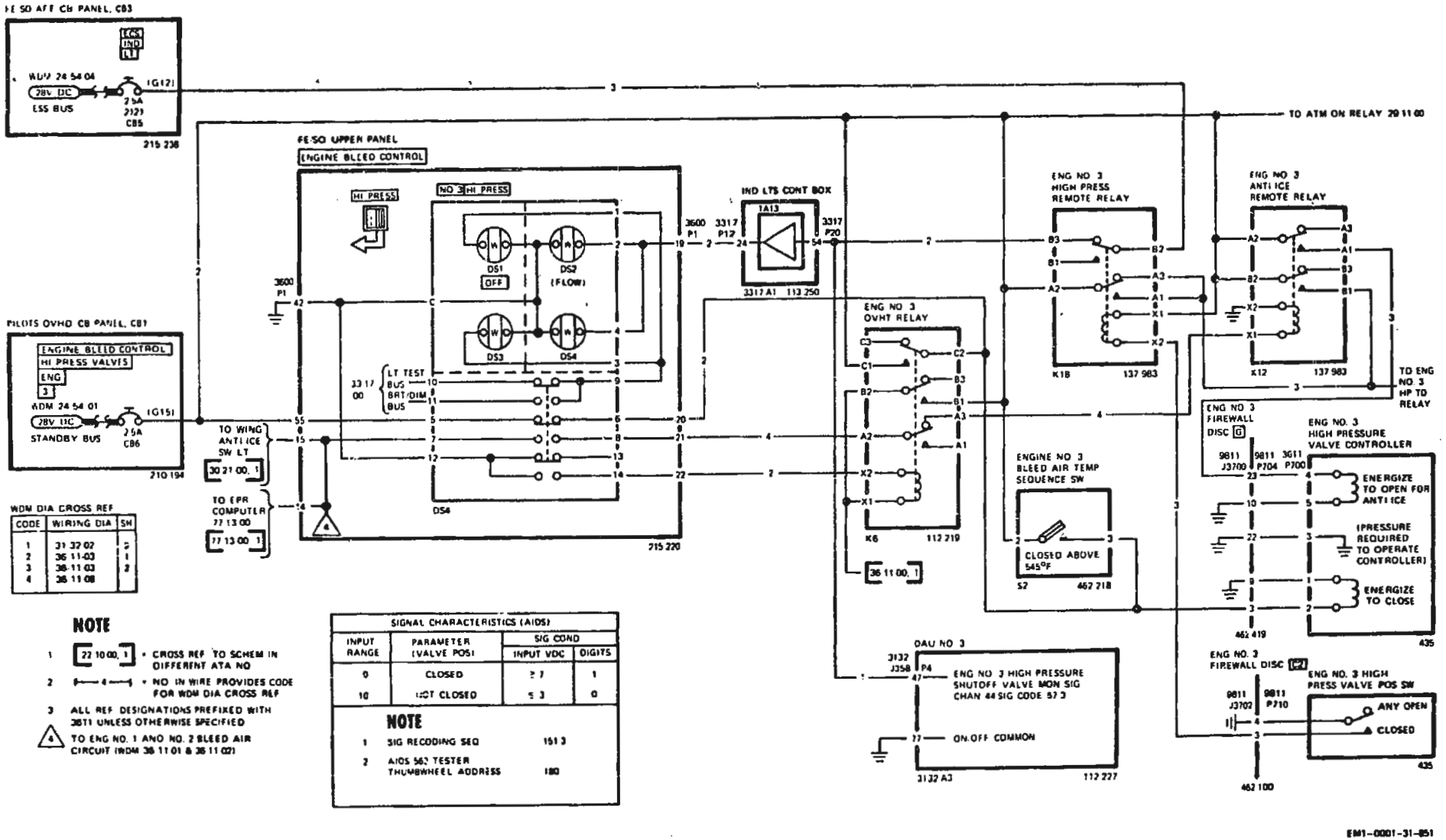
001B



R R Engine High Pressure Shutoff Valve Monitoring Schematic
SCHEM 29 (Sheet 2)

EFFECTIVITY: ALL

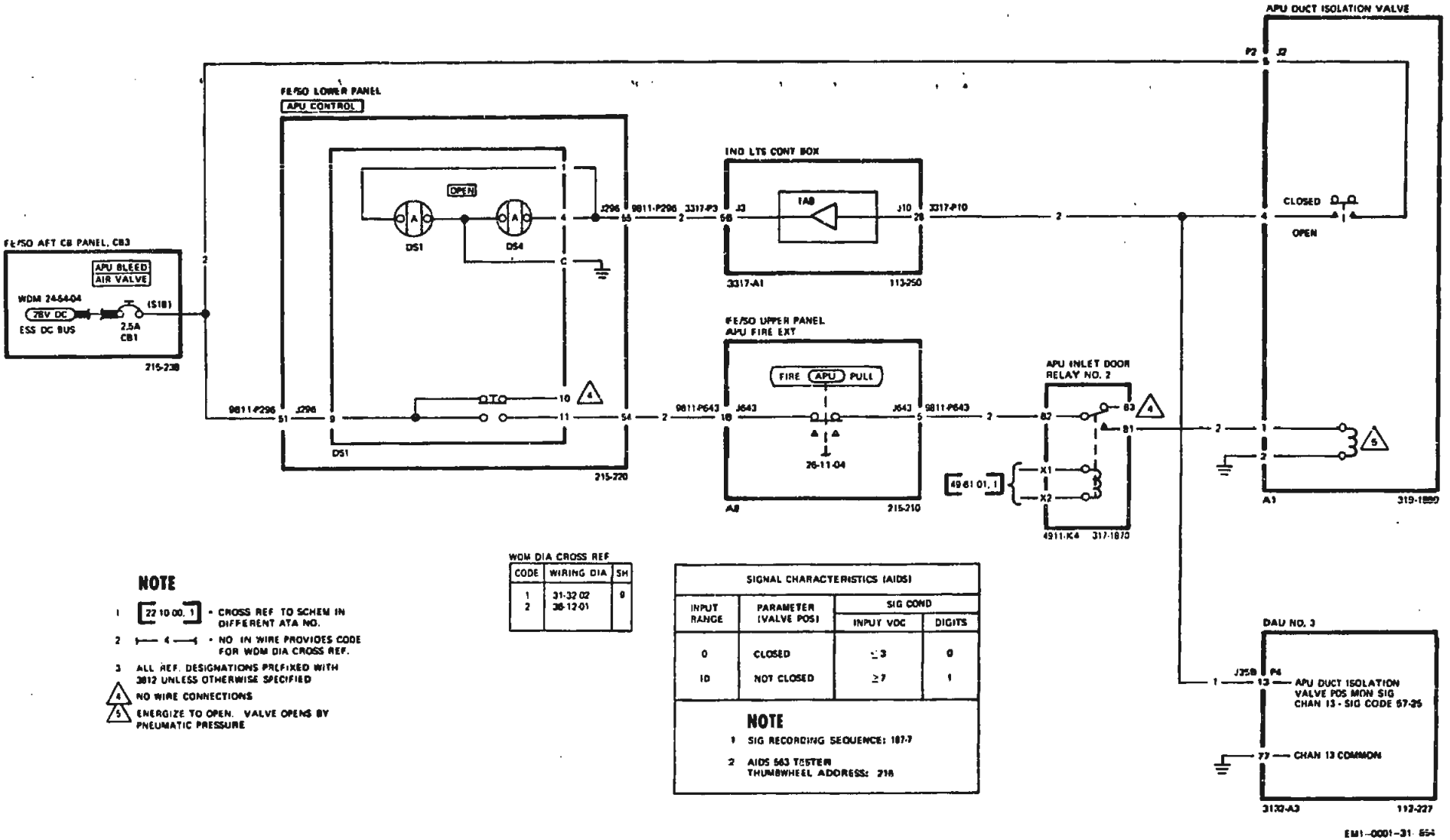
0018



R Engine High Pressure Shutoff Valve Monitoring Schematic
R SCHEM 29 (Sheet 3)

EFFECTIVITY: ALL

001B



NOTE

1. [22-10-00, 1] - CROSS REF TO SCHEM IN DIFFERENT ATA NO.
2. —4— - NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.
3. ALL REF. DESIGNATIONS PREFIXED WITH 3812 UNLESS OTHERWISE SPECIFIED
4. NO WIRE CONNECTIONS
5. ENERGIZE TO OPEN. VALVE OPENS BY PNEUMATIC PRESSURE

WDM DIA CROSS REF

CODE	WIRING DIA	SH
1	31-32-02	9
2	36-12-01	

SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (VALVE POS)	SIG COND	
		INPUT VDC	DIGITS
0	CLOSED	≤3	0
10	NOT CLOSED	≥7	1

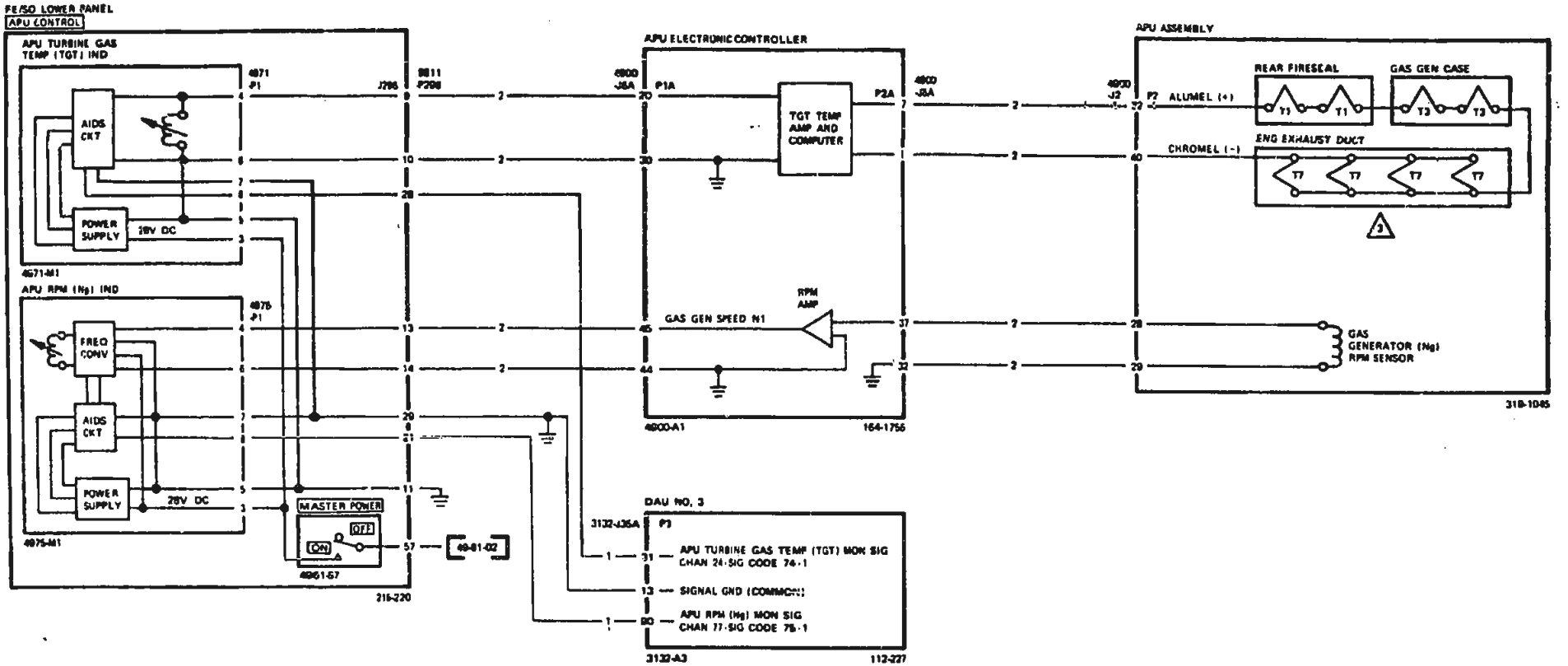
NOTE

1. SIG RECORDING SEQUENCE: 187-7
2. AIDS 563 TESTER THUMBWHEEL ADDRESS: 218

R APU Duct Isolation Valve Position Monitoring Schematic
R SCHEM 30

EFFECTIVITY: ALL

0018



NOTE

1 [22 10-00, 1] - CROSS REF TO SCHEM IN DIFFERENT ATA NO.

2 —— 4 ——(- NO. IN WIRE PROVIDES CODE FOR WDM DIA CROSS REF.

3 T1 AND T3 SENSORS ARE CONNECTED IN SERIES BUT WITH REVERSED POLARITY TO PROVIDE A COMBINED EMF EQUAL TO 2 (T3 - T1). PARALLELED T7 SENSORS FUNCTION AS A SINGLE ELEMENT PROVIDING AN EMF EQUAL TO THE AVERAGE EXHAUST GAS TEMP. THE SERIES/PARALLEL COMBINATION PROVIDES A READOUT EMF EQUAL TO T7 + 2 (T3 - T1).

APU TURBINE GAS TEMP (TGT) SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (DEG C)	SIG COND	
		INPUT VDC	DIGITS
0	000	0.0	000
1	120	0.5	100
2	240	1.0	200
3	360	1.5	300
4	480	2.0	400
5	600	2.5	500
6	720	3.0	600
7	840	3.5	700
8	960	4.0	800
9	1080	4.5	900
10	1200	5.0	999

APU RPM (Ng) SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER (% RPM)	SIG COND	
		INPUT VDC	DIGITS
0	000	0.0	000
1	012	0.5	100
2	024	1.0	200
3	036	1.5	300
4	048	2.0	400
5	060	2.5	500
6	072	3.0	600
7	084	2.5	700
8	096	4.0	800
9	108	4.5	900
10	120	5.0	999

SIG RECORDING SEQ	
SIG CODE	SEQ
74-1	87
75-1	88

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
74-1	120
75-1	125

WDM DIA CROSS REF.

CODE	DIA WIRE	GA
1	31-32-13	12
2	49-70-01	

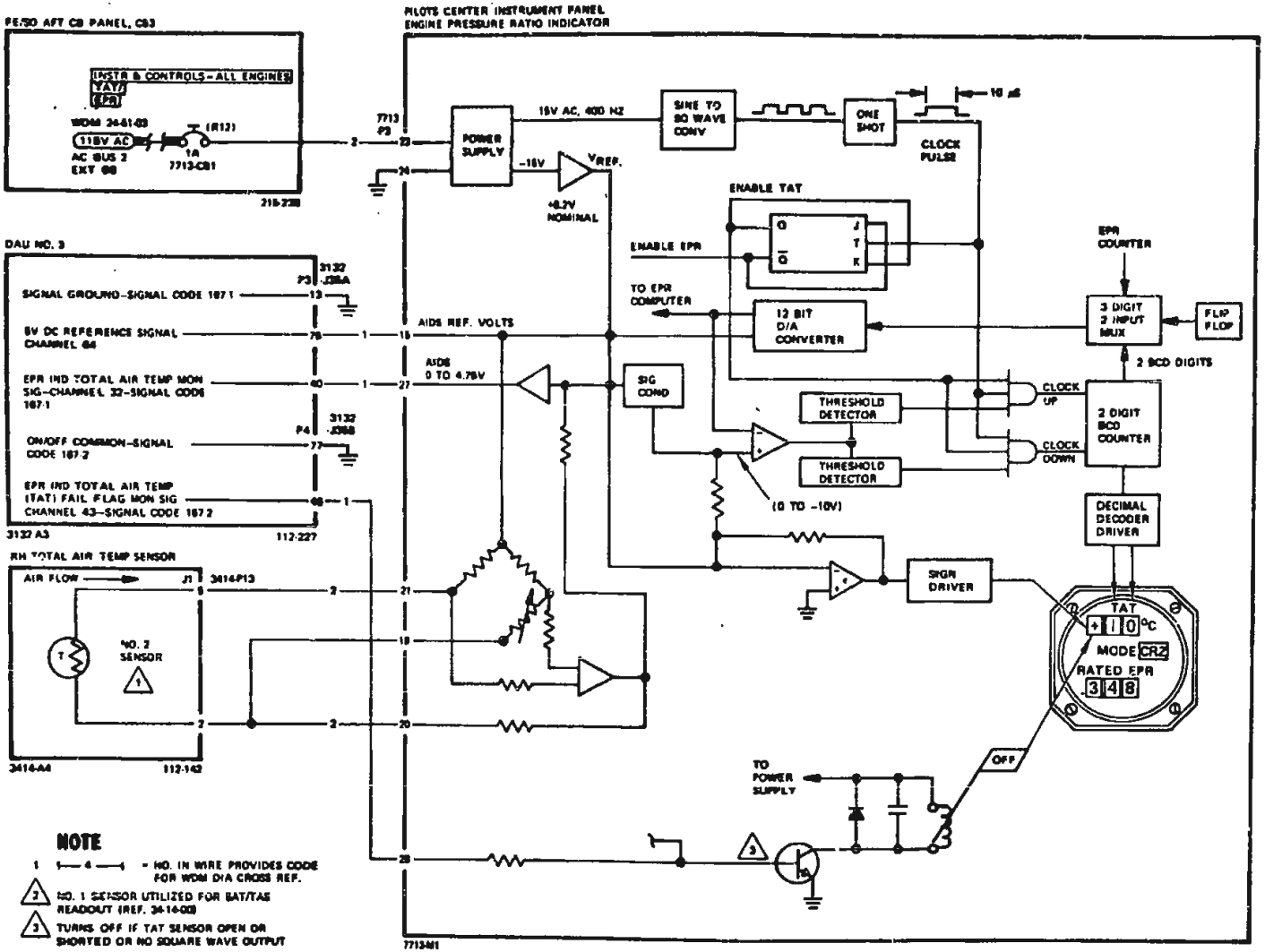
EM1-0002-31-084

R
R
R

APU Turbine Gas Temperature (TGT) and RPM Monitoring Schematic
SCHEM 31

EFFECTIVITY: ALL

001B



EPR IND TAT FAIL FLAG SIGNAL CHARACTERISTICS (AIDS)			
INPUT RANGE	PARAMETER	SIG COND	
		INPUT VDC	DIGITS
0 10	FAIL NOT FAIL	≤ 3 ≥ 7	0 1

EPR IND TOTAL AIR TEMP (TAT) SIGNAL CHARACTERISTICS (AIDS)				
INPUT RANGE	PARAMETER (DEG C)	ACCURACY (DEG C)	SIG COND	
			INPUT VDC	DIGITS
0	-60	±0.8	0.00	000
1	-48		0.50	100
2	-36		1.00	200
3	-24		1.50	300
4	-12		2.00	400
5	00		2.50	500
6	+12		3.00	600
7	+24		3.50	700
8	+36		4.00	800
9	+48		4.50	900
10	+60	±0.8	5.00	999

SIG RECORDING SEQ	
SIG CODE	SEQ
187-1 187-2	88 89-9

AIDS 563 TESTER THUMBWHEEL ADDRESS	
SIG CODE	ADDRESS
187-1 187-2	127 126

CODE	WIRING DIA	SH
1 2	31-22-11 77-13-01	2 1

R
R EPR Indicator - TAT and TAT Flag Monitoring Schematic
SCHEM 32

EFFECTIVITY: ALL

001B

R ENGINE SURGE DETECTOR - DESCRIPTION AND OPERATION

R 1. General

R The engine surge detector system continuously monitors for
R intermediate compressor delivery pressure surges as sensed by
R the transducer installed on each engine (Ref. Fig. 1). When a
R surge condition occurs within an engine, the surge detector
R automatically triggers the manual record function of the
R modified AIDS control panel. This results in the transfer of
R the previously recorded four minutes of data stored on the
R continuous loop recorder plus one minute of data after the surge
R occurrence to be transferred to the incremental recorder. The
R RECORDING IN PROGRESS light on the AIDS control panel will come
R on during this transfer of information. Installation of the
R modified AIDS control panel, surge detector, and related
R circuitry does not interfere with the normal AIDS monitoring and
R recording of engine 1, 2, and 3 IP compressor delivery pressure,
R AIDS signal codes 77-1, 77-2, and 77-3, respectively.

R The surge detector, modified AIDS control panel, and related
R circuitry are installed in airplane serial number 010 only. The
R surge detector is installed in the modified tray occupying the
R space normally reserved for DAU-4 in the MESC and the AIDS
R modified control panel is installed in the normal position on
R the FE/SO lower panel. The front panel of the AIDS control
R panel, serial number 137, has the standard configuration found
R on all airplanes, but is internally modified for use only in
R airplane serial number 010. A yellow tag affixed to the side of
R the control panel which is visible only when the unit is pulled
R out, reflects the modification.

R The front panel of the surge detector contains three SURGE
R COUNTERS ocrresponding to engine number 1, 2, and 3, a LOG
R PRESSURE indicating instrument, a three-channel rotary selector
R switch for test purposes, POWER toggle switch, power light, and
R fuse. The POWER toggle switch should be left in the ON position
R at all times. SURGE COUNTERS record the occurrence of each
R surge and may be reset to zero as required.

R 2. Testing

R Testing of the surge detector circuitry is accomplished using
R the controls on the front panel of the surge detector. A
R typical check using the CH 1 (engine 1) position on the CHANNEL
R SELECTOR switch follows:

R A. Energize the AIDS system in the normal manner for ground
R operation.

R B. Establish communications between the FE/SO station and MESC.

R C. On the front panel of the surge detector:

R (1) Check that the POWER toggle switch is in the ON
R position and amber light is on.

R (2) Rotate the CHANNEL SELECTOR switch to CH 1.

R (3) Check that the LOG PRESSURE instrument reads
R approximately 40.

R (4) Press and hold the PRESS TO TEST pushbutton. Check
R that LOG PRESSURE instrument reads approximately 100.
R Release the pushbutton and check that LOG PRESSURE
R reading returns to approximately 40.

R (5) Confirm with FE/SO station that RECORDING IN PROGRESS
R light on AIDS control panel comes on.

R (6) Check that channel 1 SURGE COUNTER has advanced to the
R next higher digit.

R (7) Check CH 2 (engine 2) and CH 3 (engine 3) in the same
R manner previously outlined for CH 1. Allow the five
R minute recording by AIDS to time out in each test
R situation.

R (8) Reset the SURGE COUNTERS to zero, if required.

R 3. Removal and Installation

R Standard practice prior to the removal or installation of any
R AIDS system component, including the surge detector, requires
R that the following circuit breakers on the FE/SO aft circuit
R breaker panel, CB3, be opened and tagged:

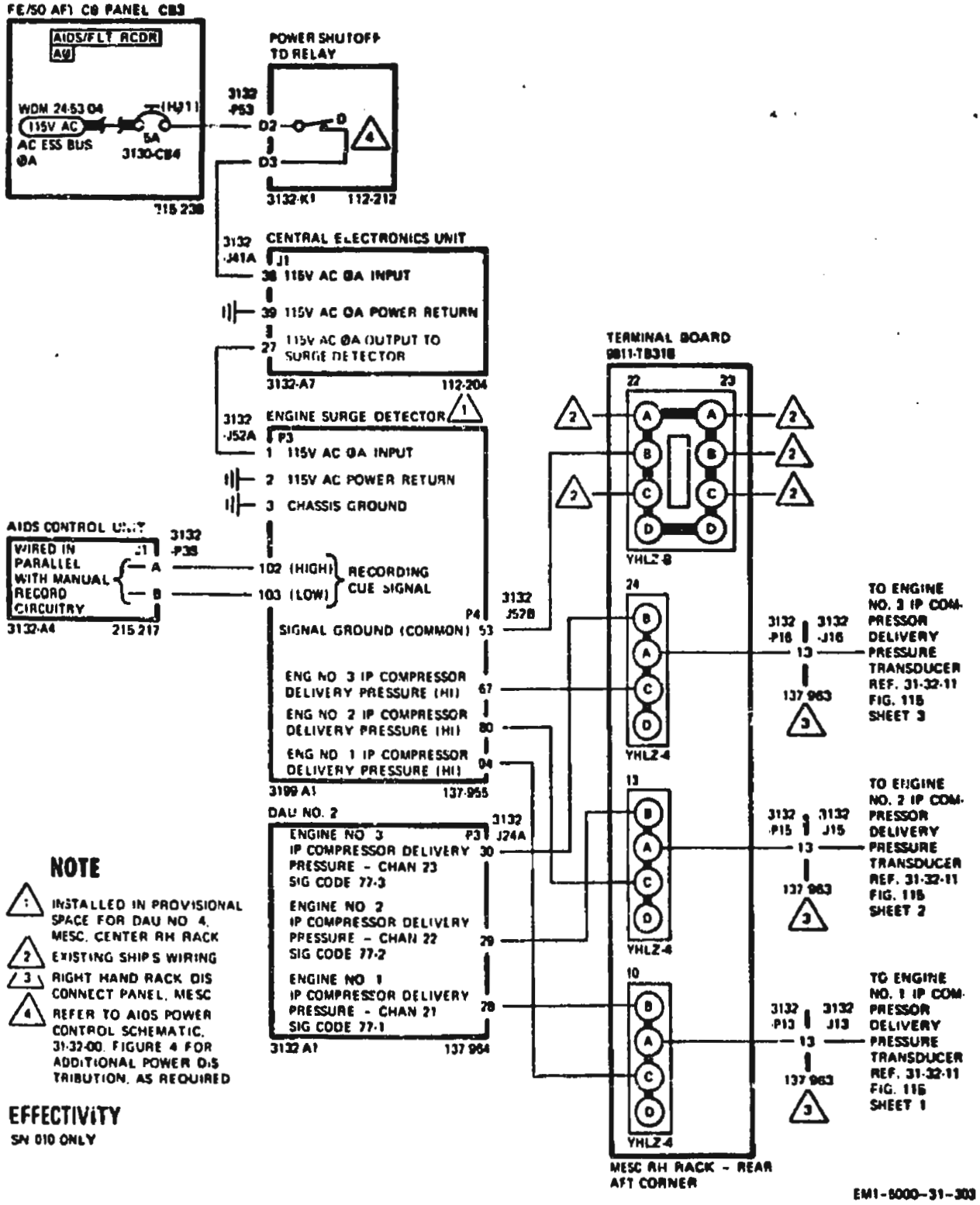
R AIDS/FLT RCDR - DC (H10)

R AIDS/FLT RCDR - AØ (H11)

R AIDS/FLT RCDR - BØ (H12)

R AIDS/FLT RCDR - CØ (H13)

R Refer to 31-32-02, 401 for removal and installation of the AIDS
R control panel. The surge detector is secured in the rack by two
R standard electronic equipment rack front holddown extractors
R (Ref. 20-23-01, 201).



Engine Surge Detector Schematic
Figure 1

R CAUTION: DATA WILL CONTINUOUSLY TRANSFER FROM THE CONTINUOUS
R LOOP RECORDER TO THE INCREMENTAL RECORDER IF THE SURGE
R DETECTOR IS REMOVED FROM THE RACK AND AIDS OPERATION
R IS RESUMED. A JUMPER PLUG DESIGNED TO SHORT CUE PINS
R 102 AND 103 OF RACK CONNECTOR 3132-J52B, THEREBY
R INHIBITING THE AIDS CONTINUOUS MANUAL RECORDING MODE,
R MUST BE INSTALLED IF IT IS NECESSARY TO REMOVE THE
R SURGE DETECTOR AND A REPLACEMENT IS NOT AVAILABLE.
R THE JUMPER PLUG IS TIED TO THE TRAY ADJACENT TO THE
R SURGE DETECTOR.

WATER SEPARATOR PRESSURE TRANSDUCER REMOVAL AND INSTALLATION

1. General

There is a pressure transducer associated with the water separator of each Environmental Control System (ECS) pack. Pack 1 is in the left ECS compartment, zone 117. Packs 2 and 3 are in the right ECS compartment, zone 118. This procedure is applicable to the three pressure transducers.

2. Referenced Procedures

31-32-00 Aircraft Integrated Data System Fault Isolation

31-32-12 Data Acquisition Unit No. 3 Fault Isolation

3. Removal/Installation

A. Removal

(1) On Flight Engineer/Second Officers aft circuit breaker panel CB3, zone 215, open and tag circuit breakers
R AIDS/FLT RCDR - DC (H10), AØ(H11), BØ(H12), and
R CØ(H13).

R (2) Locate pressure transducer in C1 cargo compartment.
R Access to transducers may be obtained by removing blo
R out panels adjacent to transducers as shown in Figure
R 401. Blow out panels may be removed as outlined in
R 25-51-13. (Without S/B31-048 Transducer is on aft
R bulkhead of appropriate ECS compartment).

(3) Disconnect electrical connector.

(4) Unscrew from fitting and remove transducer.

B. Installation

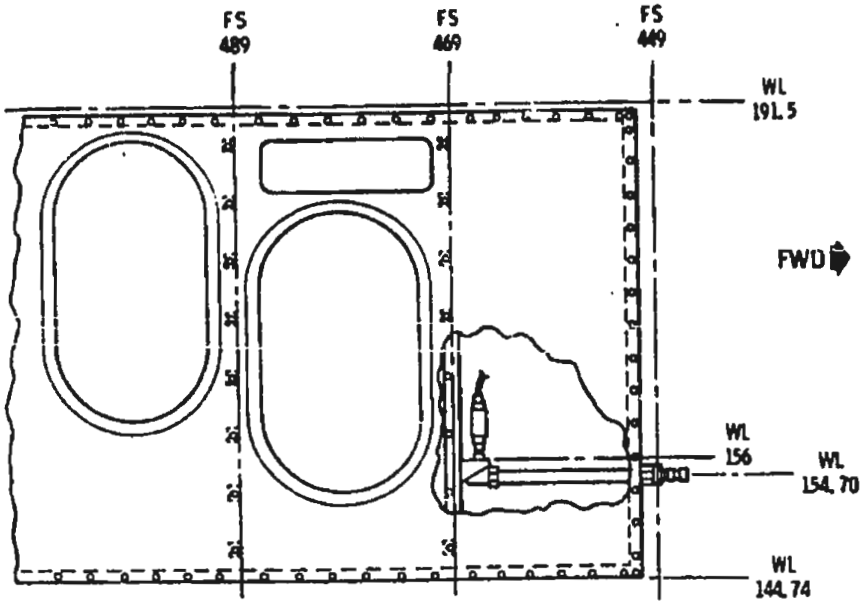
(1) Verify that circuit breakers opened in Step A(1) are open and tagged.

(2) Screw transducer to fitting.

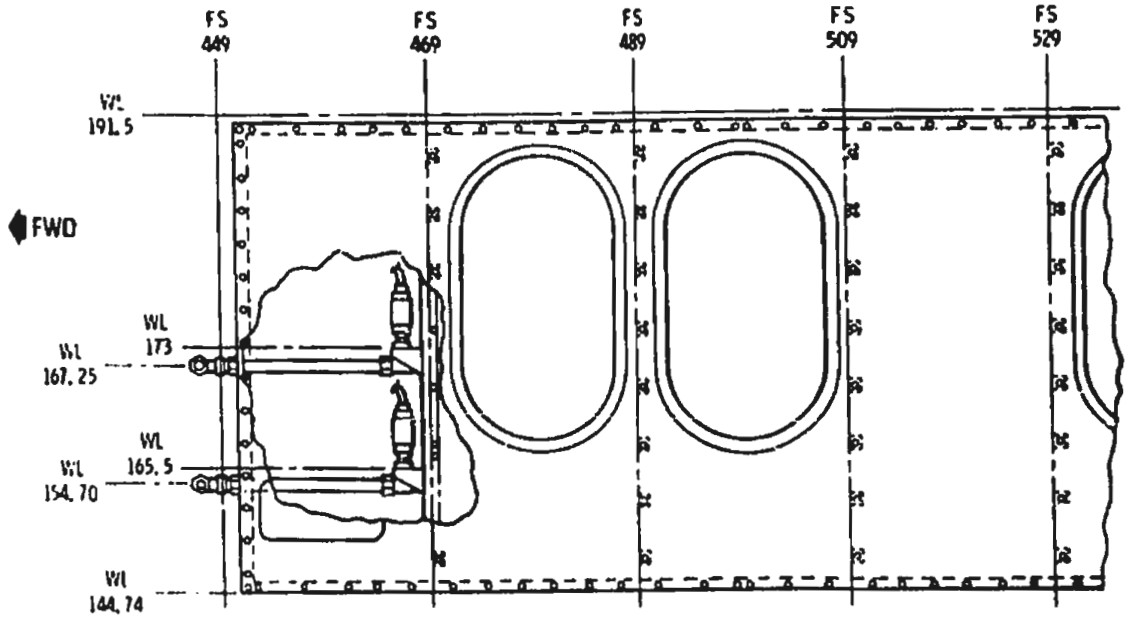
(3) Connect electrical connector to transducer.

(4) Remove tags and close circuit breakers opened in Step A(1).

R (5) Verify transducer operation (Ref. 31-32-00, 31-32-12
R SCHEM 5).



C-1 CARGO COMPARTMENT
VIEW LOOKING OUTBOARD LEFT SIDE



C-1 CARGO COMPARTMENT
VIEW LOOKING OUTBOARD RIGHT SIDE

M1-5000-31-501

R R Access and Location of Transducers and Plumbing
Figure 401

R R EFFECTIVITY: ALL